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TRANSACTIONS OF THE YORKSHIRE NATURALISTS' UNION.
PART 17,
ISSUED TO MEMBERS FOR THE YEAR 1891.

3735

(SECOND EDITION OF)

NORTH YORKSHIRE:

STUDIES OF ITS BOTANY, GEOLOGY, CLIMATE, AND PHYSICAL GEOGRAPHY,

BY

JOHN GILBERT BAKER, F.R.S., F.L.S.,

OF THE ROYAL HERBARIUM, KEW, EX-PRESIDENT AND PERMANENT VICE-PRESIDENT OF THE YORKSHIRE NATURALISTS' UNION.

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OF FIFTH INSTALMENT (FOUR SHEETS).

THE FLORA OF NORTH YORKSHIRE
(Pyrola to Sesleria) ... pp. 337—400

The next instalment will complete the Flowering Plants and commence the Mosses and Hepatics.

LEEDS:
PRINTED FOR THE YORKSHIRE NATURALISTS' UNION
BY TAYLOR BROTHERS.

OCTOBER 1892.

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TRANSACTIONS

OF THE

YORKSHIRE NATURALISTS' UNION.

PART 18 (FOR 1892)

will be devoted to the continuation of MR. KIDSTON'S

'Reports on the Carboniferous Flora of Yorkshire.'

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Pyrola secunda L. Scottish type. Native. Montane. Area 9. Range 500. In Teesdale upon the perpendicular rocks at the White Force, the station almost or quite inaccessible. It grows also at High Cup Nick, beyond our limits.

Monotropa Hypopitys L. Germanic type. Native. Area 8.3. Range 100-200. Found in plenty by Hebblethwaite on the western edge of the Central Valley in a plantation of larches at Kirklington and recently by W. W. Reeves, under beeches in Thornton-le-dale near Pickering.

Ilex Aquifolium L. British type. Native. Area general. Range 0-450. Common in woods, thickets and hedgerows, ascending to Holwick Scars and the Main Limestone crags of Downholme Moor, Preston Moor and Copperthwaite Moor. It forms almost alone a natural wood upon the slope towards the Esk of the spur of hill which separates Great Fryupdale from Little Fryupdale, and in a few other places.

Ligustrum vulgare L. English type. Native. Subxerophilous. Area general. Range 0-150. Apparently indigenous in a few places in woods and thickets, as for instance upon the coast at Saltburn; but far more usually it grows in the hedgerows of the low country, and must be regarded as introduced. It is clearly wild amongst the Limestone scars and débris of Craven, but I have not seen it under similar circumstances within our limits. Grown in gardens up to 350 yards.

Fraxinus excelsior L. British type. Native. Area general. Range 0-450. One of the commonest trees of the lowland hedgerows, but not so common as the Oak in the aboriginal dale woods. It ascends to Holwick Scars and the limestone crags of the upper part of Hell Gill.

Vinca minor L. Alien. Occasionally subspontaneous in the neighbourhood of parks and gardens. The most thoroughly established station which I have seen is at Moat Wood near Thirsk, where it grows plentifully along with *Prunus avium* near the site of a nunnery.

Vinca major L. Alien. Like the preceding, but rarer. Melsonby, Camphill, Thormanby, Great Ayton, Guisbrough, Runswick, etc.

Gentiana verna L. Intermediate type. Native. Montane. Subxerophilous. Area 9. Range 400-800. (See page 138.) In Teesdale ascending to the Main Limestone of Mickle Fell, descending to the open space between Cronkley Scars and the river. It has been seen by the Tees side in the Central Valley at Blackwell Bridge near Darlington, of course carried down by the river.

Gentiana Pneumonanthe L. English type. Native. Area 8 . 3 2 1. Range 0-200. Frequent amongst the damp sandy heaths of the Central Vale and Howardian tract. Catton, Elmire, Pilmoor, Raskelf, Stockton, Strensall, Flaxton, Slingsby Moor, Terrington Carr, etc. Damp heathery moorland in Rosedale, abundant; *W. Foggitt.* Like the other ericetal plants of the low country, it is growing gradually less plentiful year by year, as cultivation and drainage extend.

Gentiana Amarella L. British type. Native. Subxerophilous. Area general. Range 0-700. Frequent in grassy places, especially in the limestone tracts, ascending to the Main Limestone scars of Booze Moor, and the limestone edges of the north-eastern slope of Mickle Fell and in Yore district at 600 yards on Ten end; *J. Percival.*

Gentiana campestris L. British type. Native. Area 9 8 7 . 5 4 3 2 1. Range 0-600. Frequent in grassy places, ascending from the Coatham sandhills to the Main Limestone pavement of Cam Fell.

Erythræa Centaurium Pers. British type. Native. Area general. Range 0-250. Frequent in dry or damp sandy ground in the low country, ascending in Wensleydale to Aysgarth. Ascends to 250 yards on the Hambleton plateau at the head of Slip Gill.

Chlora perfoliata L. English type. Native. Area 8 . 6 . 3 2. Range 0-100. In similar situations to the preceding, but rare. About the Magnesian Limestone on the north side of the Wharfe at Thorp Arch. In the Central Valley on Carthorpe moor, and in a sandy game-preserve between Thirsk and Woodend. Amongst the coast banks at Scalby. Seed-field at Thornbrough near Thirsk; *W. Foggitt.* Bedale; *J. Wheldon.*

Villarsia nymphæoides Vent. Alien. Planted by Teesdale in the lake at Castle Howard, where it still grows. In plenty in the brick-ponds on Hob moor; *W. Whitwell.* A native of the south-east of England.

Menyanthes trifoliata L. British type. Native. Area general. Range 0-550. Frequent in ponds and swamps, especially amongst the hills, ascending to the plateau of Cronkley Fell.

Polemonium cæruleum L. Alien. A common plant in cottage gardens, and an occasional straggler from garden cultivation. Cotherstone, Lartington, Marrick, Richmond, Howgrave, Arncliffe, etc. It is well established in tolerable plenty in the hedge which separates Pouter Carr from Baldersby Park. Indigenous in West Yorkshire amongst the limestone scars of Craven, and in the Westmorland portion of Teesdale.

Collomia grandiflora Doug. Alien. A native of North America, of which about fifty specimens were seen by W. Foggitt and myself in 1852 in a field of barley near the Norby gravel-pit, Thirsk. Mentioned by A. De Candolle as a species introduced into Germany.

Convolvulus arvensis L. English type. Native. Area 8 7 6 5 4 3 2 1. Range 0-200. Common in cornfields and upon hedgebanks in the low country, ascending Wensleydale to Carperby; *J. Percival.*

Convolvulus sepium L. English type. Native. Area general. Range 0-300. Common in hedges and by the side of streams in the low country, ascending Wensleydale to Hawes; *J. Percival.*

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Convolvulus Soldanella L. English type. Native. Maritime. Area 5. Range Coast-level. Amongst the coast sand-hills in front of the village of Coatham.

Cuscuta europæa L. English type. Colonist. Area 2. Range 100. Plentiful in a forage field between Thirsk and Kirkby Knowle, upon *Vicia sativa*, etc., 1861. It was first found there by W. Foggitt. Some of the plants were quite without scales in the throat of the calyx. This is the var. *nefrens* of Fries, which has been met with under similar circumstances in Scandinavia. The species is not usually a plant of cultivated land, and in this country commonly grows either upon Hop or Nettle. It is reported from Beningbrough and Malton, but perhaps *Cuscuta Trifolii* may be what is intended.

Cuscuta Epithymum Murr. English type. Native. Area 5 . 1. Range 0-100. Upon furze and heath, rare. In the Central Valley on Stockton Forest near Thorpe's wood; *Flora*. In Cleveland near Teme bridge; *W. Mudd*! and by the foot road between Redcar and Kirkleatham; *S. Hailstone*.

Cuscuta Trifolii Bab. English type. Colonist. Area 8 . 6 5 . 3 2. Range 0-250. Not very unfrequent upon Clover. Hutton Rudby, 1853; Carthorpe, 1854; West fields, Thirsk, plentiful behind Norby, Gormire, Carlton Miniott, etc., 1858. Found by Foxton in 1852, upon the Hambleton plateau near Morton House. In clover near York; *G. Webster*. Amid corn in fields near Walton, north of Thorp Arch; *J. Abbott*.

Cuscuta Epilinum Weih. Alien. Found by Mr. Wheldon in 1860 in a flax field at the Castle hills near Northallerton.

Hyoscyamus niger L. English type. Native. Area 8 7 6 5 . 3 2. Range 0-100. Not unfrequent in waste ground in the low country, but without permanence in its stations.

Solanum nigrum L. English type. Colonist. Area 8 . 6 . 2 1. Range 0-100. An occasional weed of cultivated ground. Cattrick Bridge, Thirsk, Acomb, Stockton, etc.

Solanum Dulcamara L. English type. Native. Area general. Range 0-200. Frequent in hedgerows and damp places in the low country, ascending to the lower part of Bishopdale. Cultivated up to 350 yards. At Keld at that elevation it grows luxuriantly to a height of 8 or 10 feet, and is trained round the porches of the houses.

Solanum tuberosum L. Commonly cultivated up to 400 yards, and grown casually up to 1600 feet.

Datura Stramonium L. Alien. Casually subspontaneous in waste ground. Richmond, 1835 ; *James Ward.*

Lycium barbarum L. Frequently used for fences in the neighbourhood of the sea at Middlesbrough, Coatham, Marske, etc. Cultivated in gardens up to 350 yards.

Atropa Belladonna L. English type. Native. Subxerophilous. Area 9 8 7 6 . 4 3 2. Range 0-250. In the western dales at Cotherstone and West Burton. About the Magnesian Limestone at Pierce Bridge, Snape and Gebdykes near Masham ; about the old quarries in Thorp Arch woods ; *F. A. Lees.* In the dales of the tabular calcareous range of the east it is a plant of the aboriginal woods in several places. In Yowlasdale it is abundant, and it occurs also in Duncombe woods, on the slope of Fadmoor near Kirkby-moorside, and near Scarborough at Barrowcliff. Elsewhere in the east near a limekiln at Upsal, in Cleveland in Marske mill wood, and in the Howardian tract at Airyholme. I have no hesitation in considering it a Native in at any rate the dale stations.

Verbascum Thapsus L. English type. Native. Area general. Range 0-200. Frequent upon dry banks, ascending in Yowlasdale to Cadale Mill, and in Swaledale to Applegarth.

Four other species of *Verbascum* have been met with, but apparently all of them only as stragglers from garden cultivation. *V. nigrum* was found by James Ward near Middleton Tyas, in the lane which leads to Croft ; *V. Lychnitis* by J. Ward on rubbish by the Swale side at Brompton ; *V. virgatum* I have seen in a timber-yard at Thirsk, and it has been gathered also at

Richmond, Kirklington and Northallerton, and on an island in the river below Thorp Arch bridge, 1866, one large plant (*W. Whitwell*); and *V. Blattaria* was found by Simpson near the Wensley suspension bridge, and is recorded by Archdeacon Peirson from a lane at Highthorn near Easingwold.

Veronica arvensis L. British type. Native. Area general. Range 0-650. Common in cultivated fields and upon dry banks, ascending to the Main Limestone of Askrigg Moor and Widdale Fell. Usually, though not invariably, a plant of cultivated fields, and perhaps carried by sheep to both the stations mentioned. The higher localities of *Arenaria serpyllifolia* and some other species may not unlikely have originated in a similar manner. Amongst the higher hills the sheep often resort to the limestone banks for the sake of the grassy herbage which covers them.

Veronica triphyllos L. Germanic type. Native. Area 6. Range 0-50. Frequent in cultivated fields and on dry sandy banks in the sandy part of the Ainsty: Hobmoor, Holgate, Acomb, Nether Poppleton, etc. Only known in Britain in two other limited tracts of sandy ground.

Veronica serpyllifolia L. British type. Native. Area general. Range 0-800. Common in grassy places, ascending to the Main Limestone of Mickle Fell.

Veronica scutellata L. British type. Native. Area general. Range 0-750. Frequent in damp places, ascending to the springs which issue from the Main Limestone of Mickle Fell.

Veronica Anagallis L. British type. Native. Area 9 8 7 6 5 . 3 2 1. Range 0-100. Frequent in watery places in the low country.

Veronica Beccabunga L. British type. Native. Area general. Range 0-600. Common in watery places, ascending to the source of the Swale at Hollow Mill Cross, and the plateau of Cronkley Fell.

Veronica officinalis L. British type. Native. Area general. Range 0-800. Frequent upon dry banks, especially amongst the hills, ascending to the Main Limestone of Mickle Fell.

Veronica montana L. British type. Native. Area general. Range 0-350. Frequent in the woods of the hilly tracts throughout the lower zone, ascending to Shaw Wood in Arkengarthdale. Apart from the hills it grows in Cotcliffe Wood, and in the Central Vale by the Tees side near Stapleton.

Veronica Chamædrys L. British type. Native. Area general. Range 0-800. Common in grassy and shaded places, ascending to the Main Limestone of Cam Fell, Widdale Fell and Mickle Fell.

Veronica hederifolia L. British type. Native. Area general. Range 0-300. Common in cultivated fields and upon dry banks throughout the lower zone. It is usually an agrestal species.

Veronica agrestis L. British type. Colonist. Area general. Range 0-250. Common in cultivated places, ascending in Wensleydale to fields above Aysgarth.

Veronica polita Fries. British type. Colonist. Area 8 7 6 . 3 2 1. Range 0-150. Cultivated fields, much less frequent than the preceding. The var. *grandiflora* has been found by J. Wheldon near Northallerton.

Veronica Buxbaumii Ten. English type. Colonist. Area 8 7 6 . 4 3 2 1. Range 0-300. Not unfrequent in cultivated fields. Whitcliffe, Richmond, Wath, Northallerton, Thirsk, Sandhutton, Knayton, Towthorpe, Haxby, Castle Howard, Malton, Scarborough, etc. I have gathered it at the foot of the great cliff at Whitstoncliff. First found by O. A. Moore in 1841.

Bartsia alpina L. Intermediate type. Native. Montane. Area 9. Range 300-600. In Teesdale upon the plateau of Cronkley Fell, and by the streamside at Upper Cronkley and Winch Bridge.

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Bartsia Odontites Huds. British type. Native. Area general. Range 0-300. Common in cultivated fields and about roadsides throughout the lower zone, ascending to Holwick, Bowes, Marske Moor and Widdale.

Euphrasia officinalis L. British type. Native. Area general. Range 0-700. Common in grassy and heathery places, ascending to the Main Limestone of Cam Fell and Widdale Fell, and the peak of Lovely Seat. Our common form is authenticated by both Jordan and Boreau as their *E. ericetorum*. A plant which grows upon Stockton Forest and Wass Moor is *E. rigidula* Jordan and Boreau! Both these range under *E. nemorosa* Host, the genuine segregate *officinalis* apparently not being a British plant at all.

Rhinanthus Crista-galli L. British type. Native. Area general. Range 0-450. Common in grassy places, ascending to Upper Cronkley and Whitstondale scars.

Rhinanthus major Angl. Intermediate type. Native. Area 9 8 . 6 5 4 3 2 1. Range 0-200. Casually abundant in cornfields in the low country, and sometimes also in waste heathery places, but without permanence in its stations.

Melampyrum pratense L. including *M. montanum* Johnst. British type. Native. Area general. Range 0-800. Frequent upon heaths, and in heathery woods, ascending to the Main Limestone of Mickle Fell.

Melampyrum sylvaticum L. Scottish type. Native. Montane. Area 9 . 7. Range 250-400. In Teesdale by the wooded streamside about Winch Bridge and below Holwick. In the Yore district at 400 yards on the S.W. side of Whitfield Gill, Askrigg; *F. A. Lees.* Mill Gill; *J. Wheldon.*

Pedicularis palustris L. British type. Native. Area general. Range 0-500. Frequent in swamps and watery places from the carrs and heaths of the low country upwards amongst the hills, ascending to the plateau of Holwick fell.

Pedicularis sylvatica L. British type. Native. Area general. Range 0-550. Frequent in damp grassy places and upon heaths, ascending to the bog at the source of the Swale at Hollow Mill Cross.

Scrophularia nodosa L. British type. Native. Area general. Range 0-500. Common in woods and by streamsides, ascending in Wensleydale to Fossdale Woods, and in Teesdale to White Force Scars.

Scrophularia Ehrharti Stev. English type. Native. Area 7. Range 200-250. In Wensleydale by the side of the road near the Woodhall toll bar, between Askrigg and Carperby.

Scrophularia aquatica L. English type. Native. Area general. Range 0-100. Common in watery places in the low country, ascending to Sutton-under-Whitstoncliff.

Scrophularia vernalis L. English type. Denizen. Area 8 . 2. Range 0-100. Plentiful along a steep hedgebank which runs between Cowling Hall and the village of Burrell, and by the side of the road between Catterick Bridge and Scotch Corner. It has been met with also at Newburgh near Coxwold. At the Burrell station I have seen it, and though it is so near the village that the plant may well have been introduced, it is, at any rate, well-established.

Digitalis purpurea L. British type. Native. Area 9 8 7 . 4 3 2 1. Range 0-600. Frequent upon sandy heaths and hedgebanks, especially amongst the hills, ascending to Cronkley and White Force Scars; and to 600 yards in swallow holes of Ten end; *J. Percival.*

Antirrhinum majus L. Alien. Occasionally subspontaneous on old walls, etc. Richmond Castle, Jerveaux Abbey, etc.

Antirrhinum Orontium L. English type. Colonist. Area 3. Range 0-100. Rare as a weed of cultivated places. Helmsley; *Hinckes.* Bulmer; *J. Backhouse.* Malton; *M. B. Slater* !

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Linaria Cymbalaria Mill. Alien. Not unfrequently subspontaneous on old walls. Reeth, Grinton, Richmond, Camphill, New Buildings, Coxwold, Stittenham, Whitby Abbey, etc.

Linaria spuria Mill. English type. Colonist. Area 3. Range 0-100. Very rare as a weed of cultivated fields, and not seen recently. Barton-le-Street and Appleton-le-Street; *Archd. Peirson.* Scarborough; *Williamson.* Perhaps would be better regarded as 'Incognit.'

Linaria Elatine Mill. English type. Colonist. Area 6 . 3 2. Range 0-150. Like the preceding, a plant of cultivated fields, and very rare. It has been gathered by O. A. Moore near Thorp Arch, and by Henry Ibbotson in one of the fields above Cawklees Bank near Nunnington; and was reported also by the late J. Williamson from Scarborough. In a bean field by the footpath from Thirsk to Woodend, 1876-1887; *W. Foggitt.*

Linaria repens Aiton. English type. Denizen. Area 4. Range 50. Gravelly ground near the river Esk at Ruswarp; *W. Mudd!* Also an occasional weed of cultivated ground.

Linaria vulgaris Mill. British type. Native. Area 9 8 7 6 5 . 3 2 1. Range 0-200. Frequent upon dry banks and in cultivated fields in the low country, ascending in Wensleydale to Carperby. The Peloria form has been found by James Ward near Richmond.

Linaria minor Desf. English type. Colonist. Area 8 7 6 5 . 3 2 1. Range 0-200. Not unfrequent as a weed of cultivated ground in the low country. Thirsk, South Kilvington, Catton, Pilmoor, Ampleforth, Coxwold, Helmsley, Leyburn, Harmby, Fingall, Bedale, Kirklington, Melmerby, Hutton Conyers, Bilton, Picton, Langbargh, Lazenby, Northallerton, Rievaulx, Malton, Levisham, Hackness, Strensall, etc.

Limosella aquatica L. Germanic type. Native. Area 8 . 3. Range 0-100. Watery places in the low country, rare. In the Central Valley on the banks of Bolton Beck near Catterick Bridge;

James Ward. In the Vale of Pickering in wet places at Kirkby-Moorside and Normanby Bridge ; *Archd. Peirson.*

Mimulus luteus Willd. Alien. An occasional straggler from garden cultivation. Rocks in the Hawes stream near the town; *J. Wheldon* ! Kildale ; *W. Mudd* ! Strands pasture, Carperby ; *J. Percival.* A native of North America.

Orobanche major Angl.(= *O. Rapum* Thuill.). English type. Native. Area 3 . 1. Range 100. Parasitic upon the roots of furze, very rare. It has been gathered by M. B. Slater in the neighbourhood of Malton, and by A. R. Waller at Strensall.

Orobanche elatior Sutt. Germanic type. Native. Area 3. Range 100. Parasitic on *Centaurea Scabiosa*, very rare. It was found by Mr. Hebblethwaite in 1855 on the Limestone between Hildenley and Easthorpe, and has been noticed by various other botanists in the same neighbourhood.

Orobanche minor Sutt. Germanic type. Native. Area 8 7 . 2. Range 0-100. Parasitic principally upon Clover, occasionally plentiful in clover-fields in the low country. Burniston, Howe-upon-Swale, Nunwick, Northallerton, Thirsk, Sowerby, etc.

Orobanche ramosa L. Alien. Casually on hemp on a manure heap in a flax-field between Wighill and Healaugh, several plants, Aug. 1880 ; *F. A. Lees.*

Orobanche rubra Smith. Scottish type Native. Xerophilous. Area 7. Range 250-400. I saw this species in 1861 at Leyburn Shawl, where it had been met with previously by Messrs. Ward and Pulleine. It grows upon Thyme, upon the surface of this Main Limestone Scar, immediately beneath the débris of the flagstone quarries which yield *Teesdalia* and *Arenaria tenuifolia.* On the Main Limestone Scars above Leyburn, Preston, and Carperby, up to 1,200 feet, first gathered by Jas. Ward, and lately, in fresh places, by J. Percival.

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Lathræa squamaria L. English type. Native. Area 9 8 7 6 . 4 3 2 1. Range 0-250. Parasitic principally upon the roots of the Hazel, frequent, especially in the deep loamy soil of the aboriginal woods of the calcareous dales. It ascends to the lower part of Balderdale, and to Raydale woods in Semerdale, and to Mill Gill and Leyburn Shawl woods ; *J. Percival.*

Verbena officinalis L. English type. Native. Area 8 . 6 5 4 3 2 1. Range 0-150. Frequent about roadsides and in waste ground in the low country.

Salvia verbenaca L. English type. Native. Xerophilous. Area 8 7 6 5 4 3. Range 0-150. In the west at Ellershaw near Wensley, and on the slope of the Richmond Castle Hill, about the Magnesian Limestone at Tanfield, and also near the Yore at Masham and Hutton Conyers. On the city walls at York. In Cleveland amongst the coast sand-hills at Coatham and Saltburn, and about the East Row lime-kilns near Sandsend. Amongst the eastern calcareous hills in several places ; Oswaldkirk, Hovingham, Snainton, and upon the Castle Hill at Scarborough.

Lycopus europæus L. British type. Native. Area 8 . 6 5 . 3 2 1. Range 0-100. Frequent in watery places in the low country.

Mentha sylvestris L. English type. Native. Area 7 . 3 . 1. Range 0-200. Watery places, rare. In Wensleydale at West Burton, near the bridge called Eastholme ; *James Ward.* In the Central Valley at Stillington ; *Flora.* At Wass, on the slope of the hill down as far as the high-road to Coxwold ; *H. Ibbotson. M. rotundifolia* is recorded by Robson from the coast sand-hills near Saltburn, and has been found by W. Foggitt in a cultivated field near Thirsk, and by J. A. Wheldon at Great Smeaton by a road-side. It may be a true native. It is abundant and truly wild on the shores of Ullswater.

Mentha viridis L. English type. Denizen. Area 9 8 7 . 3 2 1. Range 0-300. . Commonly cultivated in gardens up to 350 yards, and not unfrequent in ditches and by the side of streams in the low country. Barnard Castle, Ravensworth,

Aysgarth, Wensley, Spennithorne, Nunwick, Mawnby, Sowerby, Woodend, Kilvington, Gayle Beck, Gate Helmsley, Strensall, Stockton Forest, Cotter Foss, Barton-le-Street, Pickering, Hackness, etc.

Mentha piperita L. English type. Native. Area 9 8 7 6 . 3 2 1. Range 0-300. Frequent in watery places in the low country, ascending in Wensleydale to Carperby and Cotterdale, in Gretadale to Brignal.

Mentha aquatica L. British type. Native. Area general. Range 0-500. Common in watery places, ascending in Teesdale to the plateau of Holwick Fell.

Mentha sativa L. including **rubra** and **gentilis.** British type. Native. Area general. Range 0-250. Frequent in watery places, ascending to Lonton and the Yore side below Hawes.

Mentha arvensis L. British type. Colonist. Area general. Range 0-300. Common in cultivated fields throughout the lower zone, ascending to the oat-fields of the Hambleton plateau, and in Wensleydale to Hawes; *J. Percival.*

Mentha Pulegium L. English type. Native. Area 6 . 3 . 1. Range 0-100. In several places in swamps amongst the heaths of the Central Vale and Howardian tract; Monckton, Haxby, Stockton, Strensall, Flaxton, Terrington. Reported also from Moorsholm in Cleveland.

Thymus Serpyllum L. British type. Native. Area general. Range 0-800. Common upon dry banks, especially amongst the hills, ascending to the Main Limestone of Cam Fell, Widdale Fell and Mickle Fell.

Thymus Chamædrys Fries. English type. Native. Xerophilous. Area 3. Range 100-150. Upon the calcareous Howardian terrace in the quarry outside Kitscrew Wood near Hovingham.

Origanum vulgare L. British type. Native. Subxerophilous. Area general. Range 0-450. Frequent in the woods and thickets of the limestone country upon both sides of the Central Valley, ascending to the Main Limestone Scars of

Harlen Fell. Upon the Gritstone in Deepdale. In the Central Valley in dry, sandy, or gravelly ground at Cleasby, Croft, Camphill, Burrell, Thirsk, by the Swale at Mawnby, by the Yore at Hutton Conyers, and at Strensall. In Cleveland upon the Lias at Runswick Bay, in Mulgrave woods, and below Kilton Castle.

Calamintha Acinos Clairv. British type. Native. Subxerophilous. Area 8 7 6 . 3 2. Range 0-250. About the Magnesian Limestone at Nosterfield and Thorp Arch. In the Central Valley in sandy ground at Kirklington, Thorpfield, Leckby and Carlton Miniott. In the Howardian tract frequent about Castle Howard. Amongst the eastern hills at Harriot Hare, near Rievaulx ; *W. Foggitt.*

Calamintha Nepeta Clairv. English type. Native. Xerophilous. Area 7 . 3. Range 0-100. Reported by Teesdale from the neighbourhood of Malton, and by Simpson from the Magnesian Limestone at Tanfield.

Calamintha officinalis Angl. *Calamintha ascendens* Jordan ! English type. Native. Xerophilous. Area 8 7 . 4 3 2 1. Range 0-200. In the west on the slopes of the Richmond Castle Hill and about the Magnesian Limestone at Tanfield. Amongst the eastern calcareous hills at Rievaulx, Oswaldkirk, Byland woods, Hovingham, and on the walls of Scarborough Castle; also at Brandsby and Sutton-under-Whitstoncliff. Robin Hood's Bay; *C. C. Babington.* Cundall, near Thirsk ; *W. Foggitt.*

Calamintha Clinopodium Spenn. British type. Native. Area general. Range 0-300. Frequent upon dry and shaded banks throughout the lower zone.

Teucrium Scorodonia L. British type. Native. Area general. Range 0-500. Frequent in thickets and rocky places, especially amongst the hills, ascending to Cronkley Scars, and the Main Limestone cliffs of Booze Moor and Copperthwaite Moor.

Teucrium Scordium L. Germanic type. Native. Area 8. Range 50. Found by Mr. Ward along with *Limosella* upon the banks of Bolton Beck near its junction with the Swale.

Ajuga reptans L. British type. Native. Area general. Range 0-500. Common in grassy places, both in the low country and amongst the hills, ascending to pastures above Raven's Seat, and the Main Limestone Scars of Punchard's Gill.

Ballota nigra L. English type. Native. Area general. Range 0-150. Common upon hedge-banks in the low country, ascending to the walls of Richmond Castle.

Leonurus Cardiaca L. Alien. Found by Brunton in a lane near Melmerby.

Lamium Galeobdolon Crantz. English type. Native. Area 9 . 6 5 4 3. Range 0-150. In the west in the woods of Eglestone Abbey and Thorp Arch. In the Ainsty in the lanes between Long Marston and both Tockwith and Askham Richard. In Cleveland in Cliff Rig and Whitby woods. On the slope of the calcareous hills in Sleightholme Dale, Kirkdale and near Pockley.

Lamium album L. British type. Native. Area general. Range 0-250. Common upon hedge-banks and in waste places in the low country, ascending in Wensleydale to Bainbridge.

Lamium maculatum L. Alien. An occasional straggler from garden cultivation. Richmond, Kildale, Strensall, etc.

Lamium amplexicaule L. British type. Colonist. Area 8 7 6 5 4 3 2. Range 0-200. Not unfrequent in cultivated fields in the low country.

Lamium purpureum L. British type. Native. Area general. Range 0-300. Common in cultivated fields and waste ground throughout the lower zone, ascending to the Richmond Race-course.

Lamium incisum Willd. British type. Native. Area 8 7 6 5 . 3 2 1. Range 0-300. In similar situations, and with a similar vertical range to the preceding, but much less frequent.

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Galeopsis Ladanum L. English type. Colonist. Area 9 8 7 6 5 4 3 2. Range 0-250. Frequent in cultivated fields, ascending to the plateau of the Hambleton range near Scawton.

Galeopsis Tetrahit L. including *Galeopsis bifida* Boen. British type. Colonist. Area general. Range 0-400. Common in cultivated fields and waste ground, ascending to Whitstondale Woods, and in Arkengarthdale to Shaw Wood.

Galeopsis versicolor Curt. Scottish type. Colonist. Area 8 7 6 5 . 3 2 1. Range 0-200. Frequent in cultivated fields in the low country, ascending in Swaledale to Thorpe.

Stachys Betonica Benth. English type. Native. Area general. Range 0-350. Frequent in grassy places throughout the lower zone, ascending in Arkengarthdale to Shaw Wood.

Stachys palustris L. British type. Native. Area 9 8 . 6 5 4 3 2 1. Range 0-200. Frequent in cultivated fields and damp places in the low country. *Stachys ambigua* Sm. grows near a pond by the side of the high-road about a mile south of Pierce Bridge.

Stachys sylvatica L. British type. Native. Area general. Range 0-400. Common in shaded places, ascending to the woods of Gunnerside Gill and Fossdale.

Stachys lanata L. Alien. A casual straggler from garden cultivation. Calvas Hall near Thirsk. This is the plant given in Suppl. Flo. Yorks. as *Stachys germanica*. It is a native of the South of Europe, which is often grown in gardens.

Stachys arvensis L. British type. Colonist. Area 8 7 6 5 4 3 2 1. Range 0-150. Frequent in cultivated fields in the low country.

Glechoma hederacea L. British type. Native. Area general. Range 0-300. Common upon dry banks throughout the lower zone, ascending to Applegarth Scars and rocks at the foot of Whitstoncliff. *Glechoma micranthum* Boen. with pink flowers has been met with upon a hedge-bank at Carlton Miniott.

Nepeta Cataria L. English type. Native. Area 8 . 6 . 4 3 2. Range 0-100. Not unfrequent upon hedge-banks in the low country.

Marrubium vulgare L. English type. Native. Area 8 . 6 5 4 3 2 1. Range 0-100. Not unfrequent upon hedge-banks and by road-sides in the low country. Brompton-on-Swale, Leeming, Cundall, Dishforth, Carlton Miniott, Acomb, Newton (Cleveland), Saltburn, Thornton near Pickering, Strensall. Field near Leckby Carr, abundant ; *W. Foggitt.*

Prunella vulgaris L. British type. Native. Area general. Range 0-800. Common in grassy places, ascending to the Main Limestone of Mickle Fell.

Scutellaria galericulata L. British type. Native. Area 9 8 . 6 5 4 3 2 1. Range 0-200. Frequent in watery places in the low country, ascending to Gormire and in Bilsdale to Chop Yate.

Scutellaria minor L. English type. Native. Area 5 . 3 . 1. Range 0-150. About the Kildale fishponds ; *W. Mudd.* Terrington Carr; *R. Teesdale.* Scarborough Mere ; *W. Bean.* Amongst dead furze bushes by the road leading across Strensall Common to Flaxton ; *A. R. Waller.*

Myosotis palustris With. British type. Native. Area general. Range 0-200. Common in watery places in the low country, ascending to Gormire and the upper part of Newton-dale.

Myosotis repens Don. British type. Native. Area 9 8 7 6 5 4 3. Range 0-750. Frequent in watery places, principally amongst the western hills, ascending to the springs which issue from the Main Limestone of Mickle Fell.

Myosotis cæspitosa Schultz. British type. Native. Area general. Range 0-550. Common in damp places, ascending to the source of the Swale at Hollow Mill Cross, and the tarn on the slope of Mickle Fell towards Lunedale.

Myosotis alpestris Schmid. Highland type. Native. Montane. Area 9. Range 750-800. On the slope of the

Main Limestone at the east end of the Mickle Fell ridge, where it was first found by the Backhouses in 1852.

Myosotis sylvatica Ehrh. English type. Native. Montane. Area general. Range 0-400. Common in the woods of the hilly tracts upon both sides of the Central valley, ascending to the Main Limestone scars of West Stonesdale Moor.

Myosotis arvensis Hoffm. British type. Native. Area general. Range 0-500. Common in cultivated fields and upon hedge-banks, ascending to the Main Limestone scars of Harlen Fell and Punchard's Gill, the Hind Rake lead mine and the tarn on the Lunedale slope of Mickle Fell. The variety *Myosotis umbrata* Boreau ! is frequent.

Myosotis versicolor Lehm. British type. Native. Area general. Range 0-300. Frequent upon dry banks throughout the lower zone, ascending to the flagstone quarries of Leyburn Moor.

Myosotis collina Hoffm. British type. Native. Area 8 7 6 5 4 . 2 1. Range 0-200. In similar situations to the preceding, but not so frequent, ascending to Kepwick Nab.

Lithospermum officinale L. British type. Native. Subxerophilous. Area 8 7 6 . 3 2 1. Range 0-200. In the dales of the west in thickets at Whitley Mill, St. Trinian's, Easby Abbey, Aysgarth Force, and about the Magnesian Limestone at Tanfield and Thorp Arch. In the Central Valley at Kirklington, Carthorpe, Catton, and Strensall. Amongst the limestone hills of the east in Yowlasdale, Flazendale, at Oswaldkirk Hag, Cawklees Wood, Hildenley, and Wath, and upon the arenaceous Howardian terrace in Oxcar's Wood, and hedges at Welburn.

Lithospermum arvense L. British type. Colonist. Area general. Range 0-300. Common in cultivated fields throughout the lower zone, ascending to the oat-fields of the Hambleton plateau over Hawnby.

Amsinckia lycopsoides Lehm. Alien. Below Yore Mills, Aysgarth, 1884-5 ; *F. A. Lees* ! Native of California.

Symphytum officinale L. English type. Native. Area 8 . 6 . 3 2 1. Range 0-100. Waste places and stream-sides, not unfrequent in the low country; Richmond, Topcliffe, Dalton, Thirsk, Acomb, York, Malton, etc.

Borago officinalis L. Alien. An occasional straggler from garden cultivation. Richmond, Aisenby, Thirsk, York, Coatham, Whitby, Hovingham, Terrington, etc.

Lycopsis arvensis L. British type. Colonist. Area 9 8 . 6 5 4 3 2 1. Range 0-150. Not unfrequent in cultivated fields in the sandy tracts of the low country.

Anchusa sempervirens L. Alien. An occasional straggler from garden cultivation. Spennithorne, Carlton House near Thirsk, Strensall Common, etc.

Cynoglossum officinale L. English type. Native. Area general. Range 0-250. Frequent upon dry banks and by road-sides, ascending with *Atropa* to the aboriginal woods of the upper part of Yowlasdale.

Pulmonaria officinalis L. Alien. An occasional straggler from garden cultivation. Pierce Bridge, Tanfield, Clifton, etc.

Echium vulgare L. British type. Native. Area 8 7 6 5 4 3 2 1. Range 0-250. Frequent upon walls and dry banks, ascending in Wensleydale to Leyburn, and in Swaledale to Applegarth Scars.

Pinguicula vulgaris L. Scottish type. Native. Area 9 8 7 . 5 4 3 2 1. Range 0-600. Frequent in swamps in the hilly tracts, ascending to the plateaux of Pin Seat and Cronkley Fell. In the Central Valley in Ainderby Carr, Kirklington Carr, and amongst the heaths of the Foss district.

Utricularia vulgaris L. British type. Native. Area 8 7 6 5 . 3 . 1. Range 0-100. Not unfrequent in ponds and slow streams in the low country. Tanfield, Nosterfield, Snape, Kirkby Wiske, Poppleton, Askham Bogs, Hob Moor, South Stockton, Crambeck, Malton, Scarborough Mere, Strensall, etc.

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Utricularia minor L. British type. Native. Area 8.7.3.1. Range 0-450. Rare in swamps. Leckby Carr; *Flora.* Stockton Forest; *O. A. Moore.* Terrington Carr; *R. Teesdale.* In Yore district in peat bogs S.W. of Addlebrough, 1,400 ft.; *J. Percival.*

Primula vulgaris Huds. British type. Native. Area general. Range 0-550. Common in shaded and grassy places, ascending to the Main Limestone scars of Gunnerside Gill, the limestone plateau of Kisdon, and in Widdale almost to the boundary of the upper zone.

Primula veris L. British type. Native. Area general. Range 0-350. Common in grassy places throughout the lower zone, ascending to the Hambleton plateau near Whitstoncliff. The hybrid Oxlip is not unfrequent in places where this and the preceding grow together, especially in the dales. I have a series of the same range of hybrids from both France and Switzerland, under the name of *Primula variabilis* Goupil, and of hybrids also with the true *Primula elatior* Jacq.

Primula farinosa L. Intermediate type. Native. Montane. Area 9 8 7 . 5 . 3 2 1. Range 0-600. Frequent in swamps in the western dales, ascending to the plateau of Cronkley Fell. A stemless or nearly stemless variety has been met with on Hawkswell Moor near Bellerby, and near the station for *Polygala austriaca* in Teesdale. In the Central Valley and in the low country west of the eastern hills the species grows in several stations; Kirklington, Camphill, Newby Wiske, Dishforth, Woodend, Marderby, Stillington, and in Cleveland at Ingleby and Seamer. It is plentiful in Gurtof Gill near Boltby, and in a field just where Flazendale opens out into the main dale of Rye. Ballast hole near Thirsk Junction; *W. Foggitt.* In this country, with the exception of two or three Lowland Scotch stations, it is confined to the English counties on the north of the Humber. With us it is often associated with *Lycopodium selaginoides*, *Blysmus compressus* and *Parnassia palustris.*

Trientalis europæa L. Scottish type. Native. Montane. Area 9 . 7 . 5 4 3 2. Range 150-600. Not unfrequent in heathery places amongst the higher hills on both sides of the Central Valley. It ascends to Cronkley Fell and Holwick Fell, and descends into the fir woods of the upper part of several of the dales of the east. Widdale Carr Plantation ; *F. A. Lees.* It grows also upon the tabular limestone range above Hackness, and in the Howardian tract in Hovingham woods.

Hottonia palustris L. English type. Native. Area general. Range 0-100. Frequent in ponds and ditches in the low country.

Lysimachia vulgaris L. English type. Native. Area general. Range 0-250. Frequent in watery places in the low country, ascending to Aysgarth Force and Semer water.

Lysimachia thyrsiflora L. Intermediate type. Native. Area 8 . 2. Range 0-150. Plentiful in a willowy carr about midway between Carlton Miniott and the Topcliffe railway station ; also in Leckby Carr in the great ditch, and a pond at the north-west edge of the swamp. It grows sparingly at the north-east corner of Gormire, and was found formerly where the York waterworks now are.

Lysimachia Nummularia L. English type. Native. Area 8 . 6 . 4 3 2 1. Range 0-200. Not unfrequent in watery places in the low country. Bolton-on-Swale, Mawnby, Newby, Topcliffe, Hob Moor, Askham Bogs, Knayton, Baysdale, Sheriff Hutton, Hovingham, Slingsby, Scarborough, Strensall, etc.

Lysimachia nemorum L. British type. Native. Area general. Range 0-600. Common in damp and shaded places, both in the low country and amongst the hills, ascending to the plateau of Holwick Fell, and the springs which issue from beneath the Main Limestone scars of the Buttertubs Pass.

Anagallis arvensis L. British type. Colonist. Area 8 7 6 5 4 3 2 1. Range 0-200. Common in cultivated fields and waste ground in the low country, ascending Wensleydale to Aysgarth and Swinethwaite ; *J. Percival.* *Anagallis carnea*

has been met with at Brompton-on-Swale and Bilton ; *A. cærulea* at Holgate and Malton.

Anagallis tenella L. British type. Native. Area 8 . 5 4 3 2 1. Range 0-250. Frequent in swamps throughout the lower zone, ascending to the foot of Rolston Scar.

Centunculus minimus L. English type. Native. Area 3 . 1. Range 0-100. In a few places in damp ground upon Stockton Forest and Strensall Common.

Samolus Valerandi L. English type. Native. Area 8 7 6 5 4 3 . 1. Range 0-100. Not unfrequent in watery places in the low country. Snape Mires, Marton-le-Moor, Acomb, Askham Bogs, Sandburn, Strensall Common, Kirkby Wiske Carr, South Stockton, Great Ayton, Wykeham Carr, and amongst the sea-banks at Marske and Scarborough.

Glaux maritima L. British type. Native. Maritime. Area 5 4 3. Range Coast-Level. Plentiful in the salt-marshes at Middlesbrough and Coatham. Banks of the Esk at Whitby, and on the sands near Filey.

Armeria maritima Angl. British type. Native. Sub-maritime. Area 7 . 5 4. Range Coast-Level and 200-250. In Wensleydale plentiful at the Woodhall lead mines, and on the banks of the stream down to the Yore. Along the coast-line in Middlesbrough and Coatham marshes, and about the Esk at Whitby.

Statice Limonium L. English type. Native. Maritime. Area 5 4. Range Coast-Level. Along the coast-line in Middlesbrough and Coatham marshes, and about the Esk at Whitby.

Statice Bahusiensis Fries. English type. Native. Maritime. Area 5. Range Coast-Level. Amongst the Coatham salt marshes ; *T. Simpson* !

Plantago major L. British type. Native. Area general. Range 0-550. Common along road-sides and in grassy places, ascending in Swaledale to Hollow Mill Cross, and in Wensleydale to the Main Limestone of Askrigg Moor.

Plantago media L. English type. Native. Area general. Range 0-350. Frequent in grassy places throughout

the lower zone, ascending to Hambleton plateau over Boltby.

Plantago lanceolata L. British type. Native. Area general. Range 0-700. Common in grassy places and cultivated fields, ascending in Teesdale to the slope of Mickle Fell towards the Cronkley plateau, in Swaledale to the peak of Booze Moor, in Wensleydale to the Main Limestone of Cam Fell. I have met with *Plantago Timbali* Jordan in cultivated fields at South Kilvington.

Plantago maritima L. British type. Native. Submaritime. Area 9 . 7 . 5 4 3. Range Coast-Level and 300-600. In Teesdale upon the sugar-limestone of Cronkley Fell, and by the stream-side about the High Force and Winch Bridge. It has been noted in several places lower down, but probably the stations are not permanent. In Semerdale near Carr End. Along the coast-line from Middlesbrough to Filey it is perhaps the most plentiful of all our characteristically Maritime species, growing both upon the cliffs and in low marshy ground.

Plantago Coronopus L. British type. Native. Submaritime. Area 5 4 3 . 1. Range 0-200. Frequent in sandy ground along the coast from Middlesbrough to Scarborough. Inland it grows upon Coulton Moor, Strensall Common, and Yearsley Moor in dry sandy ground.

Littorella lacustris L. British type. Native. Area 9 8 7 . 3 2 1. Range 0-400. Not unfrequent in ponds in the sandy heathery tracts. Upper Cronkley, Locker Tarn, Carperby, Bellerby Moor, Hutton Moor, Suett Carr, Yearsley Moor, Gormire, Terrington Carr, Foss reservoirs, Stockton Forest, Strensall Common, Scarborough Mere, etc.

Amaranthus Blitum L. Alien. Found by Mr. Hebblethwaite in 1858, in waste ground at Camphill.

Chenopodium olidum Curt. Germanic type. Colonist. Area 6 . 1. Range 0-100. Rare in waste ground. At York about the foot of the city walls and in garden ground at Bootham.

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Chenopodium polyspermum L. English type. Colonist. Area 8 . 1. Range 0-100. Rare in waste ground. Beningborough; *J. Backhouse.* Camphill; *Hebblethwaite.*

Chenopodium urbicum L. Germanic type. Colonist. Area 8 . 6 5 . 1. Range 0-100. Rare in waste ground. Camphill, Newby Wiske, South Otterington, York, Cargofleet, Redcar.

Chenopodium rubrum L. English type. Native. Area 9 8 . 6 5 . 3 2 1. Range 0-150. Not unfrequent in waste ground in the low country. Apparently a true Native in the coast salt-marshes. The other species, *C. Bonus-Henricus* alone excepted, appear to range best amongst the Colonists.

Chenopodium murale L. English type. Colonist. Area 6 . 1. Range 0-100. Waste ground at York at the foot of the city walls, and elsewhere upon both sides of the Ouse. Bridge near Hob Moor, on manure; *F. A. Lees.*

Chenopodium album L. British type. Colonist. Area general. Range 0-300. Common in cultivated ground throughout the lower zone. *C. paganum* Reich. is frequent in rich soil. *C. ficifolium* as a plant of North Yorkshire is doubtful.

Chenopodium Botrys L. Alien. A weed in cultivated ground at Camphill and Great Ayton. From the former station I have distributed numerous garden-grown specimens, raised from the seed of the subspontaneous plant by Mr. Hebblethwaite.

Chenopodium Bonus-Henricus L. British type. Denizen. Area general. Range 0-400. Frequent in waste ground, but always in the neighbourhood of villages and farmhouses. Like the Sycamore, probably an introduction of very ancient date. It ascends in the Yore district to the village of Cotterdale and in Gretadale to Sleightholme.

Chenopodium glaucum L. Germanic type. Colonist. Area 2. Range 0-100. Waste ground at Norby near Thirsk, where I have seen it with *Atriplex deltoidea* for many consecutive years. Rubbish heap near Sandhutton.

Atriplex portulacoides L. English type. Native. Maritime. Area 5. Range Coast-Level. Amongst the salt-marshes at Coatham and about the mouth of the Tees.

Atriplex arenaria Woods. Local type. Native. Maritime. Area 5. 3. Range Coast-Level. Amongst the salt-marshes at Coatham and on the North Sands at Scarborough.

Atriplex Babingtonii Woods. British type. Native. Maritime. Area 5 4 3. Range Coast-Level. Amongst the salt-marshes at Middlesbrough and Coatham, and in waste ground at Saltburn, Sandsend, and Whitby. Cornelian Bay and North Sands, Scarborough; *J. Wheldon.*

Atriplex patula E.B. British type. Native. Area general. Range 0-400. Common in cultivated fields and waste ground, ascending as high as field cultivation reaches.

Atriplex deltoidea Bab. British type. Native. Area 6 5 4 . 2 1. Range 0-100. Not unfrequent in waste ground upon the sea coast, and inland in rich soil in the low country. Thirsk, York, Middlesbrough, Coatham, Redcar, Whitby, etc.

Atriplex angustifolia Smith, including *A. erecta* Huds. British type. Native. Area 9 8 . 6 5 4 3 2 1. Range 0-300. Frequent in cultivated fields and waste ground throughout the lower zone, ascending to the plateau of the Hambleton range over Hawnby. These three species, like *Pyrethrum inodorum*, *Viola tricolor*, *Veronica hederifolia* and several others, occupy an intermediate position between the Colonists and the typical Natives.

Atriplex littoralis L., including *A. marina* L. British type. Native. Maritime. Area 5 4 3. Range Coast-Level. Plentiful in the marshes at Middlesbrough and Coatham. On the North Sands at Scarborough. Subspontaneous inland on the railway embankment at Guisborough.

Beta maritima L. British type. Native. Maritime. Area 5 · 3. Range Coast-Level. Frequent amongst the marshes at Middlesbrough and Coatham, and plentiful on the Castle Hill at Scarborough.

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Spinacia oleracea L. Alien. A garden escape on Oliver's Mount, Scarborough; *J. Wheldon.*

Salsola Kali L. British type. Native. Maritime. Area 5 4 3. Range Coast-Level. Frequent along the coast-line in sandy ground from Middlesbrough to Filey.

Schoberia maritima Meyer. British type. Native. Maritime. Area 5 . 3. Range Coast-Level. Frequent amongst the salt-marshes about Middlesbrough and Coatham. On the North Sands at Scarborough.

Salicornia herbacea L. British type. Native. Maritime. Area 5 4. Range Coast-Level. Frequent amongst the salt marshes about Middlesbrough and Coatham, and about the mouth of the Esk at Whitby.

Salicornia radicans Smith. Germanic type. Native. Maritime. Area 5. Range Coast-Level. Muddy banks of some of the salt-water ditches in Coatham Marshes; *W. Mudd!*

Polygonum Bistorta L. British type. Native. Area 9 8 7 6 . 4 3 2 1. Range 0-300. Not unfrequent in grassy places throughout the lower zone, ascending in Teesdale to Winch Bridge.

Polygonum viviparum L. Highland type. Native. Montane. Area 9 . 7. Range 200-450. Fields about the Tees from Upper Cronkley down the river to Middleton and Lonton. In the Yore district about Semer water, Whitfield Gill, Aysgarth Force, and other places in the upper part of the dale.

Polygonum amphibium L. British type. Native. Area general. Range 0-250. Frequent in ponds and damp places in the lower zone, ascending in Wensleydale to the neighbourhood of Hawes.

Polygonum lapathifolium L., including *P. nodosum* and *P. laxum.* British type. Native. Area general. Range 300. Frequent in cultivated fields and damp places throughout the lower zone, ascending to the oat-fields of the Hambleton plateau

over Hawnby. *Polygonum maculatum* has been met with at South Otterington and between Thirsk and Woodend.

Polygonum Persicaria L. British type. Native. Area general. Range 0-350. Frequent in similar situations to the preceding, ascending as high as field cultivation reaches.

Polygonum mite Schrank. Germanic type. Native. Area 6 . 2 1. Range 0-100. Watery places in the low country, rare. Banks of the Foss near York, and of the great ditch on Knavesmire. Banks of the Wiske at Newsham and ditches near Sandhutton. Askham Bogs; *F. A. Lees.*

Polygonum Hydropiper L. British type. Native. Area general. Range 0-300. Frequent in watery places in the low country, ascending to the upper part of Coverdale, and to Hawes and Semer water; *J. Percival.*

Polygonum minus Huds. English type. Native. Area 8 . 6 . 2 1. Range 0-100. Watery places in the low country, rare. Bolton-on-Swale, banks of the Wiske at Yafforth and Kirkby, and with *Polygonum mite* in the neighbourhood of York. Dyke-side, Dringhouses end of Askham Bog; *F. A. Lees.*

Polygonum aviculare L. British type. Native. Area general. Range 0-400. Common in cultivated fields and about roadsides, ascending to the Shaw Paddock Inn, and coalpits at the foot of Dod Fell. *Polygonum agrestinum* Jordan is frequent in rich soil.

Polygonum Convolvulus L. British type. Colonist. Area general. Range 0-300. Common in cultivated fields throughout the lower zone.

Polygonum Fagopyrum L. Alien. Casually subspontaneous in waste ground. Bedale, Semerdale, etc.

Rumex Hydrolapathum L. English type. Native. Area 8 7 6 5 . 3 2 1. Range 0-100. Not unfrequent in ditches and swamps in the low country. Carthorpe, Nunwick, Askham Bogs, Newby Wiske Carr, Newsham Carr, Crathorn, about the Foss at Huntington and the Derwent at Crambeck.

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Rumex crispus L. British type. Native. Area general. Range 0-400. Common along roadsides and in damp places, ascending to Aysgill above Hawes, and Upper Cronkley.

Rumex aquaticus L. Scottish type. Native. Montane. Area 9 8 7 6 . 2 1. Range 0-400. Frequent in all the three western dales by roadsides and in damp places. It ascends to Upper Cronkley and descends with the streams into the Central Valley. It has been noted in several stations about the Swale and the Ouse in the low country, as far down as York.

Rumex pratensis M. & K. English type. Native. Area 8 . 1. Range 0-100. In a ditch below Easby (*James Ward*) and about the Foss at Heworth and Earsley Bridge; *O. A. Moore.*

Rumex obtusifolius L. British type. Native. Area general. Range 0-500. Common in damp places and waste ground, ascending in Teesdale to Upper Cronkley, in Swaledale to Ravenseat and Crook Seat.

Rumex sanguineus L. British type. Native. Area general. Range 0-400. Frequent in similar situations to the preceding, ascending in Wensleydale to Hawes, in Swaledale to the Main Limestone scars of West Stonesdale Moor.

Rumex conglomeratus Murr. British type. Native. Area general. Range 0-300. Frequent in similar situations to the preceding throughout the lower zone.

Rumex pulcher L. Alien. Recorded by Prof. Babington from Robin Hood's Bay, but not likely to be native.

Rumex maritimus L. English type. Native. Area 8 . 3. Range 0-100. Beside a pond at Bury Hills near Kirklington; *T. Simpson!* Scarborough Mere, abundant in 1858, now rare; *W. Bean!*

Rumex palustris Smith. English type. Native. Area 8 . 6 . 1. Range 0-100. In a ditch at Pickhill; *T. Simpson!* On Knavesmire (*J. Backhouse*) and about the Foss near Peaseholme-green bridge; *O. A. Moore.* Abundant on Strensall Common; *J. Wheldon.*

Rumex Acetosa L. British type. Native. Area general. Range 0-850. Everywhere common in grassy places, ascending to the peaks of Lovely Seat and Mickle Fell, and to the Main Limestone of Cam Fell.

Rumex Acetosella L. British type. Native. Area general. Range 0-850. Common in sandy ground, both upon heaths and elsewhere, ascending to the peaks of Lovely Seat and Mickle Fell.

Oxyria reniformis Hook. Incognit. Mentioned by Robert Teesdale as a plant of North Yorkshire, but unknown as such to me.

Hippophaë rhamnoides L. Germanic type. Native. Maritime. Area 4. Range Coast-Level. There is a small thicket of the Sea Buckthorn upon the sea bank a short distance to the north of the village of Upgang, near Whitby, a station recorded by Ray. I saw the plant there and gathered specimens in flower in the spring of the year 1862. Cliffs south of Scarborough, probably introduced; *J. Wheldon*.

Daphne Laureola L. English type. Native. Area 8 7 6 5 4 3 2 1. Range 0-150. Not unfrequent in hedges and woods in the low country. Richmond, Tanfield, Thorp Arch, Newby Wiske, Northallerton, Thornton-le-Street, Sessay, Newton-in-Cleveland, Yearby, Oldstead, Kilton Castle woods, Whitby, Coxwold, Wass, Rievaulx, Castle Howard, Scarborough, Strensall Common, etc.

Daphne Mezereum L. English type. Denizen. Area 8 7 . 1. Range 0-200. Occasionally as if spontaneous in some of the woods of the low country, but never in large quantity. Clink bank, hedge at St. Trinian's, in an island in the Swale below the Foss, two bushes have been seen by the Swale side opposite Brompton, and one at Aisenby. Found by Mr. Pulleine in the west wood near Bolton Hall, and it has also been seen by the Yore side at Aysgarth Force, and is reported from a wood near Northallerton. Small wood by the side of

the Malton road beyond Heworth, with *Pyrola minor*; *W. Whitwell.* Cultivated in gardens up to 350 yards.

Asarum europæum L. Alien. Subspontaneous in a wood near the hall at Newby Wiske. Probably a garden escape, but now well established.

Aristolochia Clematitis L. Alien. Subspontaneous or planted near the old castle in Mulgrave woods (*W. Mudd!*) and about Wykeham Abbey; *W. Bean.*

Empetrum nigrum L. Scottish type. Native. Montane. Area 9 8 7 . 5 4 3 2 1. Range 0-850. Common amongst the hills upon both sides of the Central Valley, ascending to the peaks of Dod Fell and Mickle Fell. At Saltwick Ness near Whitby I have seen it almost within reach of the tide. It is a plant of the heaths of the Howardian tract, but I am not aware that it occurs amongst those of the Central Valley.

Euphorbia helioscopia L. British type. Colonist. Area general. Range 0-300. Common in cultivated fields throughout the lower zone, ascending to the Hambleton plateau over Hawnby.

Euphorbia platyphylla L. English type. Colonist. Area 6 . 1. Range 0-100. Cultivated fields at Rawcliffe (*O. A. Moore*) and Haxby; *R. Spruce.* Fields between Acomb and Dringhouses; *H. Ibbotson, G. Webster.*

Euphorbia hiberna L. Alien. Subspontaneous or planted in Kildale woods; *W. Mudd!*

Euphorbia Cyparissias L. Alien. Casually subspontaneous in waste ground. Snape Mires; *T. Simpson.* Cliff Rig, near Ayton; *W. Mudd!*

Euphorbia exigua L. English type. Colonist. Area general. Range 0-250. Frequent in cultivated fields in the lower zone.

Euphorbia Peplus L. British type. Colonist. Area general. Range 0-350. Common in cultivated fields, ascending as high as field cultivation reaches.

Euphorbia Lathyris L. Alien. Casually subspontaneous on waste ground. Hudswell, Kirklington, Newton-le-Willows, Newton-in-Cleveland, etc.

Euphorbia amygdaloides L. Alien. In the Ainsty in a copse between Bilton and Wighill Park; *O. A. Moore.* Mr. F. A. Lees, who has visited the place, thinks there is no doubt it was not indigenous.

Buxus sempervirens L. Alien. Cultivated in gardens up to 350 yards, and occasionally to be met with in a subspontaneous state.

Mercurialis perennis L. British type. Native. Area general. Range 0-500. Common in shaded places, ascending to Cronkley Scars and the Main Limestone cliffs of Harlen Fell.

Urtica urens L. British type. Native. Area general. Range 0-350. Frequent by roadsides and in waste ground throughout the lower zone, ascending in Swaledale to Keld.

Urtica dioica L. British type. Native. Area general. Range 0-800. Everywhere common in waste ground, ascending to the Main Limestone of Widdale Fell and Mickle Fell.

Parietaria diffusa Koch. British type. Native. Area 8 7 6 . 4 3 2 1. Range 0-250. Frequent upon old walls, ascending in Wensleydale to Bolton Scars. I have seen the species within our limits once only upon a natural cliff, a limestone scar in Billybank wood, near Richmond.

Humulus Lupulus L. English type. Denizen. Area general. Range 0-200. Frequent in hedgerows in the low country, but I have not seen it except in the vicinity of houses, and never in the aboriginal woods. The heat of the summers of the low country is usually not intense enough to properly ripen its seeds.

Ulmus montana Smith. British type. Native. Area general. Range 0-450. Common in hedgerows and woods, ascending in Teesdale to Holwick Scars, in Swaledale to the

Main Limestone cliffs of Whitsundale and Punchard's Gill, in Wensleydale to Upper Whitfield Force. Unquestionably native, and frequent both in the lowland hedgerows and the aboriginal dale woods.

Ulmus suberosa Ehrh. English type. Denizen. Area general. Range 0-350. Frequent in the hedgerows and plantations of the low country, but I have never seen the species amongst the limestone scars or elsewhere in an unquestionably aboriginal state. It is comparatively rare in the dales, but I have seen it as high as the elevation mentioned.

Quercus Robur L. British type. Native. Area general. Range 0-400. Common in the lowland hedgerows, and perhaps the commonest tree of the aboriginal woods of the east, both in the calcareous and arenaceous dales. In the west, though plentiful in the woods of the low gritstone tracts, upon the high calcareous scars, where grow Ash, Wych Elm, Hazel, Aspen, Rowan, Birch, Hawthorn, and some of the Roses and Willows, and in the upper part of the western dales it is scarcely to be seen. It was the only indigenous deciduous-leaved forest tree that suffered notably from the severe weather of the Christmas of 1860. I think that I have seen it at 500 yards in Teesdale, but if so I have neglected to make a note at the time. With us *Quercus pedunculata* is much more frequent both in the dales and low country than *Quercus sessiliflora*, but this latter is pretty generally distributed.

Fagus sylvatica L. English type. Denizen. Area general. Range 0-400. The Beech is said to be a tree of the post-glacial peat swamps, upon which ground I have placed it as 'Denizen.' At the present day it is planted up to 400 yards amongst the hills, and, unlike the Oak, is not unfrequent in the upper part of the western dales. But although such is the case I have not, after careful search, been able to meet with it either amongst the calcareous scars of the western hills or in the aboriginal woods of the eastern dales. Judging from present

appearances solely, I should say that the Beech is less likely to be indigenous with us than the Sycamore.

Castanea vulgaris Lam. and

Carpinus Betulus L. are both to be met with not unfrequently in hedge-rows and plantations, but have no claim to be regarded as indigenous. I have seen the former in Arkengarthdale clearly within the bounds of the middle zone, but even in the low country the fruit only just grows so as to be eatable.

Corylus Avellana L. British type. Native. Area general. Range 0-550. The commonest bush of the aboriginal dale woods, especially in the calcareous dales of both the eastern and western hills. Frequent in the low country, but not so common in the hedge-rows as the hawthorn. It ascends to the upper part of Cronkley Scars and the Main Limestone cliffs of Punchard's Gill.

Alnus glutinosa L. British type. Native. Area general. Range 0-350. Common in damp woods and along the banks of streams, ascending in Teesdale to Holwick, in Swaledale to Shaw Wood near Langthwaite, and in the Yore district to the lower part of Fossdale.

Betula alba L. including *B. glutinosa* Fries. British type. Native. Area general. Range 0-550. Common in woods and hedge-rows throughout the Agrarian region, especially amongst the arenaceous hills, where the Rowan is its frequent associate. The glen of Maize Beck and that of the northern fork of the Swale are both called Birkdale.

Populus alba L. with

Populus canescens Smith. English type. Denizen. Area general. Range 0-200. The two species are both not unfrequent in hedge-rows and along stream-sides in the low country. Winch regards *Populus alba* as indigenous in the Tyne province, but I have not seen either of them within our limits in a clearly indigenous situation.

Populus tremula L. British type. Native. Area general. Range 0-550. Frequent in woods and hedge-rows, ascending to Cronkley and Holwick Scars. Doubtless it is an inhabitant of the Yore district, but I have no note of its occurrence.

Populus nigra L. English type. Denizen. Area general. Range 0-300. Frequent in hedge-rows and by stream-sides throughout the lower zone, but quite doubtful as an indigenous tree. *Populus dilatata* is not unfrequently planted in the low country. *Populus monilifera* occurs in plantations up to 350 yards, and succeeds better than almost any other tree in exposed situations along our sea coast.

Salix pentandra L. Scottish type. Native. Area general. Range 0-350. Frequent along stream-sides and in hedge-rows and damp woods throughout the lower zone, ascending to the lower part of Whitsundale.

Salix fragilis L.* including *S. decipiens* Hoffm. and *S. Russelliana* Smith. British type. Native. Area general. Range 0-250. Common by stream-sides and damp woods in the lower zone, ascending to the fish-pond upon Lartington Moor.

Salix alba L. British type. Native. Area general. Range 0-200. Common in similar situations to the preceding, with which it is often associated. Both are commonly planted throughout the lower zone. *Salix cærulea* and *Salix vitellina* both occasionally occur.

Salix triandra L. English type. Native. Area 9 8 7 6 5 . 3 2 1. Range 0-150. Frequent by stream-sides in the low country, and often planted in osier-grounds. *Salix undulata* I have met with sparingly in an osier-ground in the neighbourhood of Thirsk.

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* A large number of Willows from the neighbourhood of Richmond and from Wensleydale were contributed by Mr. Ward to Leefe's 'Salictum Britannicum.' A series of notes by Dr. Anderssen, the monographer of the Swedish Willows, respecting these specimens and others contained in the fasciculus are given in the *Botanical Gazette*, vol. 3, page 57.

Salix acutifolia Willd. Alien. Found by James Ward in 1831 at Broadhams near Wensley, a single bush only, which is now eradicated. More recently it has been met with by Mr. Mudd in Airyholme wood, and in two or three places by the Leven side near Great Ayton, but only in very small quantity in each station.

Salix purpurea L. including *S. Helix*. British type. Native. Area 9 8 7 6 5 . 3 2. Range 0-250. Common by the stream-sides in the western dales, and occurring also more sparingly about the streams and damp woods in various parts of the low country. It ascends in Teesdale to Holwick, in Wensleydale to Hawes, and is sometimes planted in osieries.

Salix rubra Huds. English type. Native. Area 9 8 7 . 5 . 2. Range 0-100. Banks of Barton Beck near Croft, of the Tees at Yarm, of the Swale at Richmond and in many places lower down, of the Yore at Tanfield, and of Codbeck at Thirsk; also in Carlton Carr, and sometimes planted in osieries.

Salix viminalis L. British type. Native. Area general. Range 0-250. One of the commonest species of the stream-sides of the low country, but less frequent in the western dales than *Salix purpurea* and *Salix phylicifolia*. Commonly planted in osieries. Grown in gardens up to 350 yards.

Salix Smithiana Willd. English type. Native. Area general. Range 0-300. Common throughout the lower zone about stream-sides and in hedge-rows and damp woods, ascending to the lower part of Widdale. *Salix ferruginea* and *Salix rugosa* are both frequent, but the genuine *Salix acuminata* (*Salix dasyclados* Wimmer) I have not seen from within our limits. Dr. Anderssen suggests that the plant from the neighbourhood of Richmond given in Leefe's Salictum as No. 39, is *Salix Seringeana* Gaud.

Salix cinerea L. British type. Native. Area general. Range 0-450. Common by stream-sides, and in hedge-rows and damp woods, ascending to the falls of the Cover at the foot of

Great Whernside, and the Main Limestone scars of Punchard's Gill. No. 43 of the Salictum, *Salix Wardiana* Leefe, of which there is a single tree near the bridge over the Swale at Applegarth, is not unlikely a hybrid between this and *Salix phylicifolia*. Dr. Anderssen referred it to *Salix laurina*.

Salix aurita L. British type. Native. Area general. Range 0-550. Frequent in damp thickets, especially amongst the hills, ascending to Cronkley Scars.

Salix Caprea L. British type. Native. Area general. Range 0-550. Common in woods and hedge-rows, ascending in Teesdale to Cronkley and White Force Scars, in Arkengarthdale to the Main Limestone cliffs of Punchard's Gill.

Salix nigricans Fries. Scottish type. Native. Montane. Area 9 8 7 . 3 2. Range 0-400. Not so frequent about the stream-sides in the western dales as *Salix phylicifolia*. In Gretadale near Rutherford Bridge. In Swaledale about Richmond in several places. In the Yore district in Fossdale woods, and at Gayle Force and in Hardraw Gill. Amongst the eastern hills in Bilsdale, Flazendale, Beckdale, and Cockerdale. The common form of North Yorkshire is *Salix Andersoniana* Smith. *Salix hirta* S. B. 37 is from a marshy field near Ravensworth. The plants given in the Salictum as *rupestris* Dr. Anderssen places under *Salix phylicifolia*.

Salix phylicifolia L. Scottish type. Native. Montane. Area 9 8 7. Range 50-550. Common upon the banks of the streams in the western dales. It ascends in Teesdale to the falls of Maize Beck, in Swaledale to Ravenseat, and in the Yore district to Hell Gill and the falls of the Cover at the foot of Great Whernside. This includes plants referred by Messrs. Ward and Leefe to *laurina*, *propinqua*, *tenuior*, *tenuifolia*, *Davalliana*, *Weigeliana*, *nitens*, *Croweana*, *laxiflora*, and *tetrapla*. Though much more common than *Salix nigricans* in the west this has not been found at all amongst the eastern hills.

Salix repens L. British type. Native. Area general. Range 0-550. Common in heathery ground, ascending to Cronkley Scars. *Salix rosmarinifolia* has been reported from Semer Water and Saltergate, probably in error for this species. *Salix herbacea* is mentioned as a North Yorkshire plant by R. Teesdale, but is not known to me as such.

Myrica Gale L. British type. Native. Area 6 . 4 3. Range 0-200. Plentiful in Askham Bogs and in the Vale of Pickering in swampy fir woods one mile south-west of Ayton. It occurs also in several of the dales of the eastern arenaceous hills, in Eskdale south of Castleton, and is plentiful in Goathland dale, Newtondale (Fen Bog), and Harwood dale. In the Scotch Highlands it ascends to an elevation of 560 yards, but it is not known to me as a plant of our western hills, and in the east its known stations are all clearly within the lower zone.

GYMNOSPERMS.

Pinus sylvestris L. Scottish type. Denizen. Area general. Range 0-450. This is a tree of the post-glacial peat swamps, and at the present day is frequent both in the low country and amongst the hills. Entire woods of it are not unfrequent, as between Gilling and Helmsley, and a clump or row of trees may often be seen upon the north and east of houses in exposed situations. Whether any of the trees now in existence are the descendants of the aboriginal possessors of the soil may be doubted, and it is quite impossible to decide confidently. *Larix europæa* is still more frequent than the *Pinus*, and forms extensive plantations in the dales and in exposed sterile tracts both in the low country and amongst the hills where no other tree succeeds. *Abies excelsa* is frequent in plantations both in the low country and amongst the hills, and will prosper in damper situations than suit the two preceding, but is not so hardy ; and *Abies pectinata*, though not nearly upon a par as regards frequency with the other three, is occasionally to be seen. There is a considerable quantity of it in Deepdale woods. Taken together, these planted Coniferæ are doubtless as plenti-

ful at the present day in North Yorkshire as a whole as all the other trees taken together, and in many districts they give to the scenery its predominant tone.

Juniperus communis L. British type. Native. Sub-xerophilous. Area 9 8 7 · 5 4 3. Range 0-600. This and the Rowan have the widest vertical range of all the trees, and though far from frequent, the Juniper seems to be usually of indigenous growth where it does occur. In Teesdale it ascends to the plateau of Cronkley Fell, and is plentiful about the river at the High Force and lower down. In the West Swale district it grows upon the limestone scars in several places, and ascends to the Main Limestone of Gunnerside Gill, Punchard's Gill, and Booze Moor. In Yore district sparingly in Beldon Gill and one or two other places near Carperby; *J. Percival.* Elsewhere it grows only in small quantity. It is to be met with at Staniston hill near Burniston, about the head of the Leven, and on the moors above Guisbrough and Battersby, and also in Snilesworth and Danbydale. Contrary to the Furze and Broom, the Juniper and Yew are with us par excellence bushes of the Mountain Limestone tract, the former being more especially prominent in Teesdale, the latter in Swaledale.

Taxus baccata L. English type. Native. Xerophilous. Area 9 8. Range 100-450. Clearly indigenous upon the scars of the western hills. In Swaledale it ascends to the Main Limestone scars of West Stonesdale Moor and Copperthwaite Moor, and is plentiful in the woods of the lower part of the dale. It is also to be met with upon the cliffs in Teesdale, Gretadale, and Deepdale, and may be indigenous in the east in Wass Woods and Hovingham Woods, and in some other places. It is one of the frequent trees of the post-glacial peat swamps, but is uncommon now, even as planted.

MONOCOTYLEDONS.

Spiranthes autumnalis Rich. English type. Native. Sub-xerophilous. Area 8 . 3. Range 0-200. In the Central Valley abundant in grassy places in the neighbourhood of Car-

thorpe and Camphill. Upon the Middle Oolite in Duncombe Park, and in Forge Woods near Scarborough. Upon the arenaceous Howardian terrace at Ganthorpe and near the sandstone quarry in Castle Howard Park.

Neottia Nidus-avis Rich. British type. Native. Area 8 7 6 5 4 3. Range 0-200. Not unfrequent in shaded woods, principally in the lower part of the dales. Round Howe, Easby Woods, Bolton Woods, Heaning, Masham, Thorp Arch, Kirklington, Crathorn, Egton Bridge, Mulgrave Woods, Beckdale, Hildenley, Coneysthorpe, Wrelton, Thornton, Yedmandale, Thoresby Green, Hawnby Bank, Yowlasdale, etc. Woods near Saltburn; *R. Barnes* and *W. Dinsdale*, June 1889.

Listera cordata R.Br. Scottish type. Native. Montane. Area 9 8 7 . 5 4 3 2 1. Range 0-600. Frequent in heathery ground from the Central Valley (Stockton Forest, Halnaby Carr), upwards to the plateau of Cronkley Fell.

Listera ovata R.Br. British type. Native. Area general. Range 0-450. Frequent in shaded and grassy places, ascending in Teesdale to Upper Cronkley, in Swaledale to the Main Limestone scars of Kisdon.

Epipactis latifolia All. British type. Native. Area general. Range 0-250. Frequent in woods in the low country and the lower part of the dales, ascending in the Yore district to Bolton Gill; *J. Percival.*

Epipactis media Bab. English type. Native. Area 6 . 3 . 1. Range 0-100. In the Central Valley in Friarage woods near Yarm; *W. Foggitt*! Near Scarborough in Raincliffe wood; *W. Bean, Junr.*! Thorp Arch woods, in broken ground about the old limckilns; *F. A. Lees.* Knavesmire Wood; *S. Thompson*, 1843; *W. Whitwell*, 1866.

Epipactis ovalis Bab.! Local type. Native. Xerophilous. Area 8 7. Range 0-450. In Swaledale upon the Red Scar near Downholme; *James Ward*! In Arkengarthdale upon

the Main Limestone scars of Copperthwaite Moor. About the quarries of Magnesian Limestone at Nosterfield; *T. Simpson*!

Epipactis palustris Swartz. English type. Native. Area 8 7 6 5 4 3 2. Range 0-250. Not unfrequent in swamps in the low country and the lower part of the dales. Skeeby, Preston-under-scar, Masham, Carthorpe, Exilby, Hob Moor, Hutton Rudby, Guisbrough, Upgang, Flazendale, Beckdale, Hovingham, Coneysthorpe, Newtondale, Wykeham, etc.

Epipactis ensifolia Swartz. English type. Native. Area 4. 3. Range 100-250. In several places in woods amongst the eastern moorlands. Amongst the arenaceous hills in Northdale Woods, Guisborough Spa Wood and in the Howardian tract in Cum-hag Wood. Amongst the calcareous range in Yowlasdale, Rievaulx Woods, Duncombe Woods, Beckdale, and Forge Valley.

Orchis Morio L. English type. Native. Area general. Range 0-300. Common in grassy places throughout the lower zone, ascending in Wensleydale to the hill top above the Keldhead lead-mines, where it grows with *Viola lutea*.

Orchis mascula L. British type. Native. Area general. Range 0-350. Common in shaded places throughout the lower zone, ascending to the aboriginal woods upon the edge of Boltby Bank.

Orchis ustulata L. Germanic type. Native. Area 9 8 7 6 5 . 3 2 1. Range 0-200. Frequent in grassy places in the low country, ascending in Swaledale to the Round Howe, in Wensleydale to Leyburn and Aysgarth.

Orchis pyramidalis L. Germanic type. Native. Xerophilous. Area 8 7 6 5 . 3 2 1. Range 0-150. In Wensleydale near Bolton Hall, Bearpark near Carperby, and about the Magnesian Limestone at Marfield, Gebdykes, Nosterfield, and Thorp Arch. In the Central Valley at Bedale, Carthorpe, Kirklington, South Stockton, Clifton Ings, etc. Along the eastern calcareous hills in several places; Helmsley, Hovingham, Coneysthorpe, Thornton, Yedmandale, Scarborough.

Orchis latifolia L. including *incarnata* L. British type. Native. Area general. Range 0-500. Frequent in grassy places and woods, ascending to the scars of Skellgill and the plateau of Holwick Fell.

Orchis maculata L. British type. Native. Area general. Range 0-550. Common in damp places, ascending almost to the edge of the upper zone on the slope of Mickle Fell towards Maize Beck.

Gymnadenia conopsea R.Br. British type. Native. Area 9 8 7 6 . 4 3 2 1. Range 0-450. Frequent in damp and grassy places in the dales, ascending to Upper Cronkley and the Main Limestone scars of Kisdon. In the Central Valley at Theakstone, Exilby, Burniston, Thirsk, and Towthorpe Common. This species and several others not registered as Montane have a role not very different from some of the plants placed in the Montane category.

Habenaria bifolia R.Br. including *H. chlorantha* Bab. British type. Native. Area 9 8 7 . 5 4 3 2 1. Range 0-400. Frequent in shaded places amongst the hills, ascending in the Yore district to the upper part of Coverdale, in Swaledale to Ravenseat. In the Central Valley on Carthorpe Moor, Stockton Forest, Strensall and Towthorpe Commons, and in Crathorn woods. Of the two species *Habenaria chlorantha* is with us the most frequent and has the widest vertical range. The genuine *bifolia* grows upon the Hambleton plateau near Hambleton House, at an elevation of 300 yards.

Habenaria viridis R.Br. British type. Native. Area general. Range 0-400. Frequent in grassy places, ascending in Teesdale to Upper Cronkley, and as high in Widdale.

Habenaria albida R.Br. Scottish type. Native. Montane. Area 9 8 7 . 3. Range 200-450. In grassy places in several stations amongst the hills. In the west at Upper Cronkley, Winch Bridge, Hudswell, Mossdale, and many places in Upper Wensleydale, Whitfield Gill and Thoralby. In the

east amongst both ranges; Northdale, Hawnby, Helmsley, Dowthwaite Dale, Newtondale, and Hole of Horcum.

Ophrys apifera Huds. English type. Native. Xerophilous. Area 8 7 6 . 4 3 2. Range 50-200. In the western dales in woods and grassy places at Hipswell, West Burton, Aysgarth Force and Ellershaw near Wensley. About the Magnesian Limestone at Thorp Arch and Gebdykes near Masham. In the Central Vale on Carthorpe Moor. Amongst the eastern calcareous hills in several places; the Harriot Air, Rievaulx Terrace, Beckdale, Dowthwaite Dale, Hildenley Wood, Forge Valley. Fox-cover two miles N.W. of Thirsk; *W. Foggitt.* First field in the cars beyond Ruswarp; *R. Braithwaite.*

Ophrys muscifera Huds. English type. Native. Xerophilous. Area 7 6 . 4 3. Range 50-200. In the western dales at West Burton, Coverham, and Ellershaw. About the Magnesian Limestone at Thorp Arch and Marfield near Masham. Amongst the eastern calcareous hills in numerous stations; Hawnby Bank, Flazendale, Old Byland, Rievaulx, Beckdale, Cawklees Wood, Oxcar's Wood, Dowthwaite Dale, Thornton Dale, Yedmandale, etc. Aysgarth Force; *J. Percival.* Boltby Bank; *W. Foggitt.* Top of cliff near Staithes; *R. Braithwaite.* This species and the preceding, like *Convallaria majalis*, furnish typical illustrations of the Xerophilous role.

Malaxis paludosa Swartz. Incognit. This species was found by a miner of the name of John Binks, who lived at Middleton-in-Teesdale about fifty years ago, upon the spur of hill upon the Yorkshire side of the High Force, but I am not aware that it has been met with recently.

Cypripedium Calceolus L. Intermediate type. Native. Area 3. Range 150. The best known station for this species is in Ouldray Gill near Helmsley, where it has been gathered by several botanists. Mr. J. H. Phillips of Beadlam Grange saw the plant there in flower in 1849. It has also been met with in the main dale of Rye between Hawnby and Rievaulx, and may

not unlikely occur in some of the dense aboriginal woods of other glens of the eastern calcareous range.

Iris fœtidissima L. English type. Native. Area 8 7 . 5 . 3 2 1. Range 0-100. Rare in woody places in the low country. Kirklington, Little Nunwick, Raskelf, Nether Silton, Helmsley, and in Cleveland between Busby and Kirkby, and on the banks of the mill-race at Easby. Wood near Saltburn, 1885; *R. Barnes.*

Iris Pseudacorus L. British type. Native. Area general. Range 0-300. Common in watery places in the low country, ascending to Gormire, and in Yore district to Hawes; *J. Percival.*

Crocus vernus and **Crocus aureus** are both occasional stragglers from garden cultivation.

Narcissus Pseudo-narcissus L. English type. Native. Area 9 8 . 6 5 4 3. Range 0-150. Often simply subspontaneous in fields and orchards (this usually the Spanish daffodil), but clearly indigenous in woods amongst the lower levels of the hill-country in several places. Probably a true Native about the Magnesian Limestone at Pierce Bridge and Thorp Arch, and on the east in Langbargh woods, Goathland Dale, Rosedale, in Eskdale near Egton Bridge, Harwood Dale, Yedmandale, Cloughton, and Raincliffe. *Narcissus poeticus* is or has been subspontaneous in the castle yard at Pickering; and in a field at North Kilvington; *W. Foggitt.* *Narcissus biflorus* occurs in a field by the side of the road between Richmond and Aske, and at Thornborough, and near the Kilvington Roman Catholic chapel near Thirsk. *Narcissus incomparabilis* grows with *N. biflorus* at Kilvington, and has also been gathered in a field near Guisbrough Spa. *Galanthus nivalis* is frequently subspontaneous in parks and near gardens, but I have no hesitation in placing it with the three *Narcissi* in the Alien category, so far as North Yorkshire is concerned.

Lilium Martagon L. Alien. Occasionally subspontaneous in the neighbourhood of gardens. Hedge-bank at St.

Martin's near Richmond ; *James Ward.* Wood near the hall at Thorp Arch ; *James Backhouse.* Plantation by the Swale side below Aisenby.

Tulipa sylvestris L. Denizen. Area 2. Range 50. Meadow near Bagby and Thirkleby park ; *W. Foggitt.* I have seen a specimen from the neighbourhood of Malton, but do not know upon which side of the Derwent it was gathered.

Allium Scorodoprasum L. Intermediate type. Native. Area 8 7 6 5 . 3 2. Range 0-200. Not unfrequent in grassy places in the low country. Thoralby, Carperby, East Witton, Middleham, Ripon, Carthorpe, Thorp Arch, Monkton, Langbargh Rigg, Skipton Bridge, Thirsk, Borrowby, Coneysthorpe, etc.

Allium oleraceum L. Germanic type. Native. Area 8 7 6 . 3 2 1. Range 0-200. Not unfrequent in similar situations to the preceding. Richmond, Easby, Carperby, Jervaulx, Carthorpe, Nether Poppleton, Acomb, Holgate, Haxby, Thirsk, Kilvington, Newburgh, Hovingham, etc.

Allium vineale L. English type. Native. Area 8 7 6 . 3 2 1. Range 0-500. Not unfrequent in similar situations to the two preceding, ascending in Yore district to Aysgarth Force, Addlebrough west scar, over 1,500 feet ; *J. Percival. Allium Schœnoprasum* is reported by Mr. Flintoff in the Botanist's Guide from meadows at Kirkby-Moorside.

Allium ursinum L. British type. Native. Area 9 8 7 . 5 4 3 2 1. Range 0-350. Common in shaded places throughout the lower zone, ascending in Teesdale to Unthank, in Swaledale to thickets below the Main Limestone scars of West Stonesdale Moor.

Gagea lutea Ker. Intermediate type. Native. Area 9 8 7 . 5 . 3 2. Range 0-250. Not unfrequent in shaded places, especially in the lower part of the dales. In the west at Cotherstone, Brignal, Rokeby, Applegarth, Richmond, Wensley, Eastholme, and Leyburn Shawl, and about the Magnesian Limestone at Pierce Bridge, Thorp Arch, Marfield and Brown

Holme near Masham. In the central valley at Brompton-on-Swale, Camphill, and in a wood on the south side of the Swale near Leckby Carr. On the east in Newton Wood and near Little Ayton, in the Vale of Mowbray at Leake and Mount St. John, and amongst the calcareous hills and in the Howardian tract in numerous stations. Aislebeck, North Kilvington, Balk, and other places near Thirsk ; *W. Foggitt.*

Ornithogalum umbellatum L. English type. Denizen. Area 8 . 6 . 3 2. Range 0-100. In the neighbourhood of Thirsk this species grows in a meadow scattered over at least an acre of what seems to be unbroken grazing ground, and also in smaller quantity in another meadow in the same vicinity, in both cases associated only with truly indigenous plants. It has also been met with at Carthorpe, Middlethorpe near York, on Terrington Broats, and in Forge Valley.

Ornithogalum nutans L. Alien. Purple Lane, Sowerby, Thirsk ; *W. Foggitt.* Bank by wood-side midway between Tadcaster and York ; *H. Ibbotson.*

Scilla nutans Sm. British type. Native. Area general. Range 0-350. Common in woods and upon the borders of heaths throughout the lower zone, ascending in Swaledale to Keld, in Arkengarthdale to Shaw Wood.

Ruscus aculeatus L. Alien. Subspontaneous in two or three places, but apparently without any claim to be considered an indigenous plant.

Convallaria bifolia L. Local type. Native. Area 3. Range 150-200. Upon the wooded escarpment of the eastern calcareous range on the slope of Hutton Bushel moor towards Everley, scattered over a space of ground ninety yards in length. Found in 1857 by Messrs. Reynolds and Braby. This is the only British station where the plant is clearly indigenous. It is widely distributed upon the Continent from Scandinavia southward, and is plentiful in the Northern United States.

Convallaria majalis L. Germanic type. Native. Xerophilous. Area 9 8 . 6 . 3. Range 50-300. In the west near

the Tees below Holwick, in Swaledale in the Round Howe woods and about the Magnesian Limestone at Thorp Arch. Amongst the eastern calcareous range in numerous stations; Hawnby, Old Byland, Rievaulx, Beckdale, Wrelton, Kingthorp woods, Yedmandale, Forge Valley, and in the Howardian tract in Wath, Slingsby, and Cum-hag woods.

Convallaria multiflora L. English type. Native. Area 8. Range 150. In Swaledale by the side of the river opposite Applegarth; *James Ward*! Reported also by Archdeacon Peirson from Newburgh woods.

Paris quadrifolia L. British type. Native. Area general. Range 0-250. Frequent in shaded woods in the lower part of the dales and amongst the slopes.

Tamus communis L. English type. Native. Area general. Range 0-250. Frequent in woods and hedges, ascending to the lower part of Waldendale and Askrigg.

Colchicum autumnale L. English type. Native. Area 8 7 6 5 . 3 2 1. Range 0-250. Not unfrequent in damp fields and about stream-sides in the low country. Richmond, West Witton, Bolton woods, Middleham, Aysgarth Force, river-side at Leyburn, Thornton Watlass, Newby Wiske, Thorp Arch, York, Thirsk, Topcliffe, Thirkleby, Malton, Cotcliffe, etc.

Tofieldia palustris Huds. Highland type. Native. Montane. Area 9. Range 400-600. In Teesdale upon the plateau of Cronkley Fell, and in the open ground below Cronkley Scars.

Hydrocharis Morsus-ranæ L. English type. Native. Area 8 7 6 . 3 2 1. Range 0-100. Not unfrequent in ponds and slow streams in the low country. In the Central Vale at Pickhill, Ainderby Carrs, Ripon, Newby Wiske Carr, Raskelf, Askham Bogs, Hob Moor brick-ponds, and in the Vale of Pickering in the Derwent above Malton. Lake at Castle Howard; *W. Foggitt.*

Anacharis Alsinastrum Bab. Alien. Subspontaneous in the Wiske and in a pond at Kirkby Wiske, in the old course of Codbeck in Sowerby flats, and in the Clifton Ings ditch, and amongst the Foss Islands near York.

Stratiotes aloides L. Alien. Subspontaneous or planted in some of the ditches on the Sion Hill estate near Kirkby Wiske, and in a pond at Leeming.

Alisma Plantago L. British type. Native. Area general. Range 0-200. Common in ponds and ditches in the low country.

Alisma ranunculoides L. British type. Native. Area 8 7 6 . 3 2 1. Range 0-250. Frequent in ponds and ditches in the low country, ascending to Bellerby and Downholme Moor.

Alisma natans L. Local type. Native. Area 8 7. Range 0-250. In the Central Valley in a pond on Carthorpe moor; *Hebblethwaite*! In the Yore district on the south side of Semer Water; *F. A. Lees.*

Sagittaria sagittifolia L. English type. Native. Area 8 . 6 5 . 3 2 1. Range 0-100. In the Central Valley about the Wiske at Yafforth, and in Kirkby Wiske Carr, in the ditches at South Stockton, and along the course of the Foss in several places; also in Slingsby Carr and in the Derwent at Malton. Gathered in the Ainsty by George Webster. Bedale Harbour; *J. Wheldon.*

Butomus umbellatus L. English type. Native. Area 8 7 6 5 . 3 2 1. Range 0-100. With the preceding in all the stations enumerated, and also in ditches at Snape, Pickhill, and Great Ayton, in the mill-cut at Masham, and in the Swale at Topcliffe Mill.

Triglochin maritimum L. British type. Native. Maritime. Area 5 4 3. Range Coast-Level. In the salt marshes at Middlesbrough and Coatham, and more sparingly at Scarborough and about the Esk at Whitby.

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Triglochin palustre L. British type. Native. Area 9 8 7 6 5 4 3 2. Range 0-600. Frequent in damp places, ascending to the plateau of Cronkley Fell and the tarn on the Lunedale slope of Mickle Fell.

Scheuchzeria palustris L. Intermediate type. Native. Area 8. Range 50. In the Central Valley in the peat bogs of the swampy parts of Leckby Carr. Discovered by Rev. James Dalton.

Potamogeton densus L. English type. Native. Area 9 8 7 6 5 . 3 2 1. Range 0-100. Frequent in ponds and slow streams in the low country.

Potamogeton pectinatus L. British type. Native. Area 8 7 6 5 4 3 2 1. Range 0-250. Frequent in ponds and slow streams in the low country, ascending in the Esk district into Sleddale, and in the Yore district to Semer Water; *J. Percival.* A maritime form grows in the salt-water ditches at Middlesbrough and Coatham.

Potamogeton flabellatus Bab. ! English type. Native. Area 8 . 6 . 3 2 1. Range 0-100. Plentiful in the Swale at Skipton Bridge and Topcliffe, the Ouse along Clifton Ings, and the Derwent below Malton.

Potamogeton pusillus L. British type. Native. Area 8 7 6 5 4 3 2 1. Range 0-350. Frequent in ponds and ditches, ascending in Arkengarthdale to the reservoir of the Moulds low-level lead-mine. *Potamogeton compressus* L. is reported from a pond at St. Trinian's near Richmond; *James Ward*: and the Foss at York; *O. A. Moore.* A plant gathered in clear clay-bottomed pits at Dringhouses is referred by Mr. F. A. Lees to *P. rutilus* Wolfg.

Potamogeton gramineus L. *Potamogeton obtusifolius* M. & K. English type. Native. Area 6 . 3. Range 0-100. In the Derwent at Crambeck; *Flora.* Ponds at Castle Howard; *R. Teesdale.* In the Mere at Scarborough; *A. Bloxam.* Chandler's Whin ponds, and Hob Moor; *G. Webster.* *Potamogeton zosteræ-*

folius is reported by Robert Teesdale from a rivulet at Hovingham, but has not been seen recently.

Potamogeton crispus L. British type. Native. Area general. Range 0-250. Common in the ponds and streams of the low country, ascending to Semerwater.

Potamogeton perfoliatus L. British type. Native. Area 8 7 6 . 3 2. Range 0-100. Like the preceding, but less frequent, and not ascending into the dales.

Potamogeton lucens L. English type. Native. Area 8 . 3 2 1. Range 0-150. In a pond at St. Trinian's; *James Ward.* Abundant in the Foss at York and in the lower part of the Derwent; also more sparingly in Gormire and Scarborough Mere. The Gormire plant is erroneously given as *prælongus* in Suppl. Fl. Yorksh. Var. *acuminatus* with the type in Scarborough Mere; *J. Wheldon.*

Potamogeton heterophyllus Schreb. British type. Native. Area 8 . 3 2 1. Range 0-300. In the west on Downholme Moor; *James Ward*; and frequent about Bedale; *T. Simpson.* Plentiful in Gormire, and in the Foss reservoirs below Yearsley, and lower down the river about York.

Potamogeton rufescens Schrad. British type. Native. Area 8 7 . 3. Range 0-200. Ponds at St. Trinian's; *James Ward.* In Yore district in a bog in Shand's pasture, Carperby; and in streams on Thornton Rust Moor; *J. Percival.* In the Howardian tract in Bulmer fields near Castle Howard; *Hebblethwaite.* Pond near Scarborough; *W. Bean*! Abundant in Newtondale beck from the upper part of the dale as far down as Levisham.

Potamogeton natans L. British type. Native. Area general. Range 0-150. Common in ponds in the low country, ascending to Wensley and Aske.

Potamogeton oblongus Viv. British type. Native. Area 9 8 7 6 5 4 3 2. Range 0-550. Common in peaty pools,

especially amongst the hills, ascending to the plateau of Cronkley Fell.

Potamogeton plantagineus Ducr. English type. Native. Area 8 . 4. Range 0-150. Pond by the side of the railway between Sinderby and Melmerby ; *Hebblethwaite* ! Bogs near the Black Beck in Baysdale ; *W. Mudd* !

Zostera marina L. British type. Native. Maritime. Area 5. Range Coast-Level. In several places upon the shore of the Tees estuary.

Ruppia maritima L. British type. Native. Maritime. Area 5. Range Coast-Level. Abundant in some of the salt-water ditches in Coatham marshes. Our plant is the true *maritima*.

Zannichellia palustris L. British type. Native. Area 8 . 6 5 . 3 2 1. Range 0-150. Frequent in ponds and ditches in the low country. Our inland plant is the *Zannichellia repens* Bonng., and *Zannichellia pedicellata* Fries grows in the salt-water ditches at Middlesbrough and Coatham.

Lemna minor L. British type. Native. Area general. Range 0-300. Common in ponds and ditches throughout the lower zone.

Lemna gibba L. English type. Native. Area 6 . 1. Range 0-100. In the Central Valley in Sheriff Hutton Carr and in the lower part of the Foss. Askham Bogs ; *H. Ibbotson.*

Lemna polyrhiza L. English type. Native. Area 6 . 3 2 1. Range 0-100. Ponds and slow streams in the low country, rare. Askham Bogs. Newsham Carr, Raskelf, Sheriff Hutton Carr, Flaxton, Stockton Forest, Castle Howard, and in the lower part of the Foss.

Lemna trisulca L. English type. Native. Area 8 . 6 5 . 3 2 1. Range 0-100. Not unfrequent in ponds and ditches in the low country. Kirkby Wiske, Hob Moor brick-ponds, Askham Bogs, Long Marston, Stokesley, Great Ayton, Coatham marshes, Thirsk, Bagby, Topcliffe, Crambeck, Scarborough, etc.

Arum maculatum L. English type. Native. Area general. Range 0-250. Frequent upon hedge-banks and in woods in the lower zone, ascending nearly to the summit of Hood Hill.

Acorus Calamus L. English type. Native. Area 3 2 1. Range 0-200. Watery places, rare. About the Ouse near Kirkby Hall, and at the land-slip pond above Kirkby Knowle. By the Derwent side at Howsham, and found formerly on the banks of the fish-pond at Castle Howard.

Sparganium minimum Fries. British type. Native. Area 8 7 6 . 3 2 1. Range 0-100. Not unfrequent in ponds and slow streams in the low country. Skeeby, Sedbury, Hutton Conyers, Pickhill, Kirklington, Wath, Kirkby Wiske, Strensall, Askham Bogs, Hob Moor, Skipton, Buttercrambe Moor, Scarborough Mere, etc.

Sparganium simplex Huds. British type. Native. Area 8 . 6 5 4 3 2 1. Range 0-100. Frequent in ponds and ditches in the low country.

Sparganium ramosum Huds. British type. Native. Area general. Range 0-250. Frequent in ponds and ditches, ascending in Teesdale to the fish-pond on Lartington Moor, in Swaledale to Summer Lodge Beck near Crackpot, in the Yore district to Semerwater.

Typha latifolia L. British type. Native. Area 8 7 6 5 4 3 2 1. Range 0-100. Frequent in ponds in the low country, ascending to the Foss reservoirs.

Typha angustifolia L. English type. Native. Area 6 5 . 3 2 1. Range 0-100. In similar situations to the preceding, but rarer. In the Central Vale at Hob Moor, Busby Stoop, between Sowerby and Sessay, Strensall brick-ponds, and in a pit by the railway near Thirsk Junction. In Cleveland near Great Ayton. In the Vale of Pickering at Howe Bridge and in Scarborough Mere.

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Juncus conglomeratus L. British type. Native. Area general. Range 0-400. Frequent in damp places, ascending to the foot of Great Whernside.

Juncus effusus L. British type. Native. Area general. Range 0-800. Common in ditches and damp places, ascending to the peak of Nine Standards and the Main Limestone of Mickle Fell.

Juncus glaucus Sibth. English type. Native. Area general. Range 0-400. Common in damp places, ascending to the upper part of Upton Gill, Penhill, and as high on the slope towards Arkengarthdale of Booze Moor.

Juncus diffusus Hoppe. English type. Native. Area 9 . 7 . 2. Range 0-250. Damp places, rare. In the Yore district on the east of Semerwater. In the Central Valley between Barton and Halnaby, in ditches at Newsham, fields near the Woodend Railway Bridge, and ponds at Busby Stoop. About the pond above the land-slip at Kirkby Knowle.

Juncus maritimus Sm. British type. Native. Maritime. Area 5 4. Range Coast-Level. Amongst the sand-hills in front of the village of Coatham, and found also by the Rev. G. E. Smith in the neighbourhood of Whitby.

Juncus acutiflorus Ehrh. British type. Native. Area general. Range 0-400. Common in watery places, ascending to Urra Moor over Bilsdale.

Juncus lamprocarpus Ehrh. British type. Native. Area general. Range 0-600. Common in watery places, ascending to the edge of the upper zone on Great Whernside. A curious maritime form grows in the salt-marshes at Coatham.

Juncus supinus Mœnch. British type. Native. Area general. Range 0-650. Common in damp places, ascending to a tarn on the edge of the fell on the north of the source of the Swale.

Juncus obtusiflorus Ehrh. English type. Native. Area 8 . 6 . 2. Range 0-200. In the west in Skeeby Marsh, and

about a pond at St. Trinian's. In the Central Valley in Ainderby Carr, Kirkby Wiske Carr, Askham Bogs, a carr between Askham Richard and Healaugh, and ditches near the Woodend Railway Bridge. About the pond above the land-slip at Kirkby Knowle.

Juncus compressus Jacq. British type. Native. Area 5 . 3 2 1. Range 0-100. Rare in damp fields in the low country. Kirkleatham, Thirsk, York, Ganthorpe, etc.

Juncus cœnosus Bich. British type. Native. Maritime. Area 5 4. Range Coast-Level. Plentiful in the salt-marshes about Middlesbrough and Coatham; and occurring also at Runswick and by the Esk side at Whitby.

Juncus bufonius L. British type. Native. Area general. Range 0-550. Frequent in damp places, ascending to Upper Cronkley and Hollow Mill Cross.

Juncus squarrosus L. British type. Native. Area 9 8 7 . 5 4 3 2 1. Range 0-850. Common upon heathery ground, ascending to the peaks of Mickle Fell, Great Whernside, Lovely Seat, etc. Next to *Calluna*, perhaps the commonest plant of the moors. My friend the late James Backhouse sent from Mickle Fell a form which in its habit of growth curiously resembles *J. castaneus*, the occurrence of which has most likely given rise to the record of that species as a Teesdale plant.

Juncus triglumis L. Alien. Upon the banks of the stream upon the plateau of Cronkley Fell this species grows sparingly, and it is said to have been planted there by John Binks. Upon Widdy Bank it is plentiful.

Luzula sylvatica Bich. British type. Native. Area 9 8 7 6 5 4 3 2. Range 0-600. Frequent in woods and upon cliffs amongst the hills, ascending to Cronkley Fell.

Luzula pilosa Willd. British type. Native. Area general. Range 0-500. Common in shaded places, ascending to Cronkley Scars.

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Luzula campestris R.Br. British type. Native. Area general. Range 0-850. Common in grassy places, ascending to the peak of Mickle Fell.

Luzula multiflora Lej. British type. Native. Area general. Range 0-700. Common in grassy and heathery places, ascending to the peak of Dodd Fell.

Narthecium ossifragum L. British type. Native. Area 9 8 7 . 5 4 3 2 1. Range 0-650. Frequent in swamps, especially amongst the hills, ascending above the Main Limestone upon Water Crag and Dodd Fell.

Cyperus fuscus L. Incognit. The report of this species from Codhill Moor appears to be erroneous, the mistake seeming to have arisen through inadvertent mingling of examples of the plant procured from the South of England with a packet of specimens from that locality.

Cladium Mariscus R.Br. English type. Native. Area 6 . 3. Range 0-100. In the Central Valley in Askham Bogs, and on Buttercrambe Moor near York. Reported by Robert Teesdale from Terrington Carr, but now extinct there.

Schœnus nigricans L. British type. Native. Area 8 . 4 3. Range 0-150. Swamps in the low country, rare. Skeeby Marsh, Kirklington Carr, ditches at Topcliffe, Yowlasdale, Flazendale, Beckdale, Marske, and Randaymere near Sleights.

Rhynchospora alba Vahl. British type. Native. Area 8 . 3 . 1. Range 0-100. Rare in heathery swamps. Plentiful in Leckby Carr. In small quantity on Strensall Common; *A. R. Waller.* In the Howardian tract on Slingsby Moor and in Terrington Carr.

Blysmus compressus Panz. English type. Native. Area 9 8 7 . 5 4 3 2 1. Range 0-400. Frequent in oozy places, especially in the calcareous dales. In the west it is often associated with *Parnassia*, and ascends to the upper part of Coverdale and as high in Widdale. It grows amongst the

coast sand-hills at Coatham and Saltburn. In the Central Valley I know of it in two stations only, by the Tees side at Stapleton, and at Holmes, Thirsk; *W. Foggitt.*

Scirpus lacustris L. British type. Native. Area 9 8 7 6 5 . 3 2 1. Range 0-250. Frequent in ponds and slow streams, ascending to Semerwater and the Foss reservoirs.

Scirpus glaucus Smith. English type. Native. Maritime. Area 5. Range Coast-Level. In some of the salt-water ditches that intersect the marshes at Middlesbrough and Coatham, specially plentiful at the decoy-pond.

Scirpus setaceus L. British type. Native. Area 8 . 5 4 3 2 1. Range 0-550. Frequent in damp places, ascending in Swaledale to Crook Seat and Hollow Mill Cross.

Scirpus maritimus L. British type. Native. Maritime. Area 5 4. Range Coast-Level. Common in the salt-water ditches about Middlesbrough and Coatham, and occurring also at Runswick Bay and near the Esk at Whitby.

Scirpus sylvaticus L. British type. Native. Area general. Range 0-150. Frequent in watery places in the low country, ascending to Levisham and the Foss reservoirs.

Scirpus palustris L. British type. Native. Area general. Range 0-400. Frequent in watery places, ascending in Teesdale to Upper Cronkley.

Scirpus multicaulis Sm. British type. Native. Area 3. Range 100. In the Howardian tract in swampy ground on Slingsby Moor; *Henry Ibbotson*!

Scirpus pauciflorus Lightf. British type. Native. Montane. Area 9 8 7 . 3. Range 0-700. Frequent in oozy places amongst the western hills, ascending to the northern slope of Mickle Fell, descending to Cotherstone and Aysgarth Force. In the Central Valley by the Tees side at Stapleton. Pilmoor and Holmes, Thirsk; *W. Foggitt.* In Cleveland on Codhill and Sleights Moors, and reported also by W. Brunton from the neighbourhood of Malton.

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Scirpus cæspitosus L. British type. Native. Area general. Range 0-850. Common in heathery swamps, ascending to the peaks of most of the higher hills.

Scirpus acicularis L. English type. Native. Area 7 . 3 2 1. Range 0-250. Ponds and swamps in the low country. Plentiful upon Pilmoor, Stockton Forest, and Strensall Common. In the Howardian tract in Terrington Carr and the fish-pond in Castle Howard Park. Muddy south and south-west shores of Semerwater; *F. A. Lees*. Reported also from the neighbourhood of Masham.

Scirpus fluitans L. British type. Native. Area 9 8 . 6 . 3 2 1. Range 0-400. In similar situations to the preceding, but with a wider vertical range. In the west on Downholme Moor, and in the pond at the foot of Cronkley Scars. In the Central Valley on Carthorp Moor, Pilmoor, Hob Moor, Askham Bog ditches, Stockton Forest, Strensall Common, etc. Plentiful in Gormire and Terrington Carr.

Eriophorum vaginatum L. British type. Native. Area 9 8 7 . 5 4 3 2 1. Range 0-750. Common upon damp heaths, ascending to the peaks of Dodd Fell and Nine Standards, and the peat-bog below the Main Limestone of Mickle Fell on the north.

Eriophorum angustifolium Roth. British type. Native. Area general. Range 0-800. Common in swampy places, ascending to the peaks of Dodd Fell and Mickle Fell.

Eriophorum latifolium Hoppe. British type. Native. Area 9 8 7 . 3. Range 100-400. In the west near Winch Bridge, in Skeeby Marsh, in a bog near the head of Waldendale, and by the Yore side at Aysgarth Force. Locker Tarn, Carperby, and bogs at foot of Addlebrough; *J. Percival.* On the east in Snilesworth, Flazendale and Beckdale, and formerly in a bog on the east side of Castle Howard Park.

Eriophorum gracile Koch. Local type. Native. Area 9. Range 100. Found by Mr. Woods with *Ranunculus Lingua* in Halnaby Carr near Croft. Not seen there recently.

Elyna caricina M.&K. Intermediate type. Native. Montane. Area 9. Range 400-600. In Teesdale on the banks of the stream on the plateau of Cronkley Fell, and in the open ground between the scars and the river.

Carex dioica L. Scottish type. Native. Area general. Range 0-600. Frequent in swampy ground, ascending to the plateau of Cronkley Fell.

Carex pulicaris L. British type. Native. Area 9 8 7 6 . 4 3 2 1. Range 0-700. Frequent in swampy ground, ascending to the northern slope of Mickle Fell and the Main Limestone of Cam Fell.

Carex pauciflora Lightf. Highland type. Native. Montane. Area 3. Range 200-250. Banks of the Derwent near Lilla Cross, and several boggy places between Whitby and Pickering; *W. Middleton*! Not seen recently.

Carex stellulata Good. British type. Native. Area general. Range 0-750. Common in swampy places, ascending to the peak of Nine Standards and the springs which issue from the Main Limestone of Mickle Fell.

Carex ovalis Good. British type. Native. Area 8 7 6 5 4 3 2 1. Range 0-450. Common in damp places, ascending to the lower part of Birkdale and the ridge of Harlen Fell.

Carex curta Good., including *vitilis* Fries. British type. Native. Area 9 8 7 . 5 4 3 2 1. Range 0-750. Frequent in swampy ground, ascending to the springs which issue from the Main Limestone of Mickle Fell.

Carex remota L. British type. Native. Area general. Range 0-350. Common in ditches and damp woods, ascending in Swaledale to Kisdon Woods.

Carex axillaris Good. English type. Native. Area 8 . 6 . 3 2. Range 0-100. Plentiful amongst the brick-ponds at Hob Moor near York. Reported also from Love Lane near Richmond (*James Ward*); Carthorpe Moor near Bedale (*T. Simpson*); a bog at Wildon near Coxwold (*R. Peirson*); and Newtondale; *Flora*.

Carex intermedia Good. English type. Native. Area 9 8 7 6 . 3 2 1. Range 0-100. Frequent in damp fields in the low country.

Carex arenaria L. British type. Native. Maritime. Area 5 4. Range Coast-Level. Plentiful amongst the coast sand-hills about Coatham, Redcar, Marske, and Saltburn.

Carex muricata L. British type. Native. Area general. Range 0-250. Frequent upon dry banks in the low country, ascending in Wensleydale to Redmire. West Burton and Preston Scar; *J. Percival.*

Carex divulsa Good. English type. Native. Area 8 7 . 3 2. Range 0-150. In similar situations to the preceding, but rare. Near Wensley and by the foot-road between Richmond and Easby; *James Ward.* Hedge-bank by the side of the high-road below Feliskirk. Hedge-bank near Cowsby Park; *W. Foggitt.* In the Howardian tract at Ganthorpe and in Cum Hag Wood; *Henry Ibbotson* !

Carex vulpina L. British type. Native. Area 9 8 . 6 5 4 3 2 1. Range 0-100. Common in damp places in the low country.

Carex teretiuscula Good. British type. Native. Area 9 . 7 . 4 3 2. Range 0-150. Plentiful in some of the low country carrs. Halnaby Carr, Tanfield Hall Carr, Newsham Carr, etc. In Cleveland in bogs in Sleddale; *W. Mudd* ! In the Howardian tract in Terrington Carr, and formerly in a bog near Castle Howard; *H. Ibbotson.* Marsh near Raincliffe Wood; *W. Bean, Junr.* !

Carex paradoxa Willd. Local type. Native. Area 6. Range 50. In the Ainsty in a carr between Healaugh and Askham Richard, and plentiful in Askham Bogs. A species widely diffused upon the Continent, but which is singularly local in Britain. There is only one other strictly British locality, and one in Ireland.

Carex paniculata L. British type. Native. Area 8 7 6 5 4 3 2 1. Range 0-250. Frequent in swamps, ascending in Wensleydale to Askrigg.

Carex vulgaris Fries. British type. Native. Area general. Range 0-750. Common in damp places, ascending to the plateau of Pinseat, and the springs which issue from the Main Limestone of Mickle Fell.

Carex rigida Good. Highland type. Native. Montane. Area 9. Range 850. Heathery places upon the gritstone peak of Mickle Fell. The only species, except *Myosotis alpestris*, which is restricted to the upper zone.

Carex stricta Good. English type. Native. Area 9 8 . 6 5 . 3. Range 0-100. Plentiful in several of the low country swamps. Halnaby Carr, Ainderby Carr, Newsham Carr, Askham Bogs, Scarborough Mere, and in Cleveland in a bog below Captain Cook's monument on Kildale Moor.

Carex acuta L. British type. Native. Area general. Range 0-200. Common in damp places in the low country, ascending to Wensley and the upper part of Newtondale.

Carex flava L. British type. Native. Area general. Range 0-750. Common in damp places, ascending to the springs which issue from the Main Limestone of Mickle Fell.

Carex extensa Good. British type. Native. Maritime. Area 5 4. Range Coast-Level. Amongst the salt-marshes at Coatham and near the Esk at Whitby.

Carex pallescens L. British type. Native. Area general. Range 0-300. Common in damp places, ascending in Swaledale to Kisdon Force, and in Wensleydale to Cotter Force and Mossdale.

Carex fulva Good. British type. Native. Area 9 8 7 . 4 3 2 1. Range 0-600. Frequent in damp places amongst the western hills, ascending to the plateau of Cronkley Fell. In the Central Valley at Croft. Amongst the eastern hills in

numerous stations; Sleddale, Flazendale, Gurtof Gill, Beckdale, Coxwold, Foss reservoirs, Hole of Horcum, etc.

Carex distans L. British type. Native. Maritime. Area 5. Range Coast-Level. Amongst the salt-water ditches about the mouth of the Tees, and in Coatham marshes.

Carex binervis Smith. British type. Native. Area 9 8 7 · 5 4 3 2 1. Range 0-850. Frequent upon heaths, ascending from the Central Valley to the peak of Mickle Fell.

Carex lævigata Smith. British type. Native. Area 5 4 3. Range 0-150. Banks of the Goathland dale stream near Walking Mill Foss. Raincliffe Wood near Scarborough; *W. Bean, Jun.*! Found also by Mr. Peterkin in the neighbourhood of Hackness; and by Mr. J. Wheldon, near Redcar.

Carex panicea L. British type. Native. Area general. Range 0-750. Common in damp places, ascending to the springs which issue from the Main Limestone of Mickle Fell.

Carex capillaris L. Highland type. Native. Montane. Area 9. Range 400-700. In Teesdale upon the Sugar Limestone of the Cronkley plateau, and also upon the limestone edges of the northern slope of Mickle Fell, and in the open ground in front of Cronkley Scars.

Carex limosa L. Scottish type. Native. Area 9 8 7 6 · 3 1. Range 0-400. In a few of the carrs of the low country. Tanfield Hall Carr, Leckby Carr, Suett Carr near Sutton-on-the-Forest, and Terrington Carr. Askham Bogs, 1876; *F. A. Lees.* Watershed at the head of the Black Beck in Balderdale, 1885; *W. Foggitt.*

Carex sylvatica Huds. British type. Native. Area general. Range 0-400. Common in damp woods, ascending in Swaledale to Gunnerside Gill, in Arkengarthdale to Shaw Beck Woods.

Carex strigosa Huds. English type. Native. Area 3. Range 0-100. Found in June, 1889, in Forge Valley, by Mr. W. W. Reeves and Mr. M. B. Slater.

Carex pendula Huds. British type. Native. Area 9 8 . 5 4 3. Range 0-150. Swampy woods, not uncommon. On the west in Clink Bank Woods and Easby Woods near Richmond, and in the Central Vale in a wood by the Tees side between Stapleton and Croft. Breckenbrough and stream at Sandsend; *W. Foggitt.* In Cleveland in numerous localities; Kildale, Wilton, Saltburn, Arncliffe Woods, Goathland dale, Sleights, Mulgrave Woods, Kilton Woods, etc. Near the Rye at Rievaulx, and plentiful in Forge Valley.

Carex pseudo-cyperus L. English type. Native. Area 7 6 . 3 . 1. Range 0-100. In the Central Valley in a bog near the Yore at Ripon, about the Ouse along Clifton Ings, in Askham Bogs and at the Hob Moor brick-ponds. In the Howardian tract at Castle Howard.

Carex glauca Scop. British type. Native. Area general. Range 0-750. Common in dry and damp places, ascending to the peak of Great Whernside.

Carex præcox Jacq. British type. Native. Area 9 8 . 6 5 4 3 2. Range 0-600. Common upon dry banks, ascending to the Sugar Limestone of Cronkley Fell.

Carex pilulifera L. British type. Native. Area 9 8 7 . 5 4 3 2 1. Range 0-600. Common in damp places, ascending to the plateau of Cronkley Fell.

Carex digitata L. English type. Native. Xerophilous. Area 7 . 3. Range 0-200. In the Yore district in Magdalen Woods near Tanfield; *T. Simpson.* Amongst the eastern calcareous hills plentiful upon Hawnby Bank and in Ouldray Gill, and found also by Mr. Reynolds near Hackness.

Carex filiformis L. Scottish type. Native. Area 8 7 6 5 . 3 2 1. Range 0-200. Frequent in damp places in the low country.

Carex hirta L. British type. Native. Area 8 7 6 5 4 3 2 1. Range 0-350. Common in damp places throughout the lower zone, ascending to the upper part of Coverdale.

Carex ampullacea Good. British type. Native. Area general. Range 0-550. Common in swamps both in the low country and amongst the hills, ascending to a pond on the back of Cronkley Fell.

Carex vesicaria L. British type. Native. Area 8 7 6 . 4 3 2 1. Range 0-250. Frequent in swamps, ascending in the Yore district to Semerwater. 'Hybrid between *vesicaria* and *ampullacea*,' Hawes backwater; *J. Percival.*

Carex paludosa Good. British type. Native. Area 9 8 7 6 5 . 3 2 1. Range 0-300. Common in watery places in the lower zone, ascending in Teesdale to Winch Bridge.

Carex riparia Curt. British type. Native. Area 8 . 6 5 4 3 2 1. Range 0-150. Frequent in swamps in the low country.

Setaria viridis Beauv. Alien. Subspontaneous in waste ground near Great Ayton, 1855; *W. Mudd*! Ballast-holes near Thirsk Station; *W. Foggitt.*

Setaria verticillata Beauv. Alien. Subspontaneous in garden ground at Camphill, 1858; *Hebblethwaite*!

Phalaris arundinacea L. British type. Native. Area general. Range 0-400. Common in watery places, ascending to Hawes and Upper Cronkley.

Phalaris canariensis L. Alien. Not unfrequently subspontaneous in cultivated fields.

Anthoxanthum odoratum L. British type. Native. Area general. Range 0-750. Everywhere common in grassy places, ascending to the peak of Great Whernside.

Phleum tenue Schrad. *Achnodonton* Beauv. Alien. Of this grass, which is a native of the South of Europe, intermediate between the genera *Phleum* and *Phalaris*, I met with a few specimens in 1862, in a bed of onions in garden-ground at Thirsk.

Phleum pratense L. British type. Native. Area general. Range 0-400. Common in grassy places and upon dry banks,

ascending in Wensleydale to fields at Simonside. Mr. Hebblethwaite sends a plant which agrees with authenticated specimens of *Phleum præcox* Jordan, from fields at Kirklington.

Phleum arenarium L. English type. Native. Maritime. Area 5 4. Range Coast-Level. Amongst the coast sand-hills at Coatham, Redcar and Marske.

Alopecurus pratensis L. British type. Native. Area general. Range 0-500. Common in grassy places, ascending in Teesdale to Upper Cronkley, in Swaledale to Crook Seat.

Alopecurus geniculatus L. British type. Native. Area general. Range 0-400. Common in damp places, ascending in Wensleydale to a pool near the Shaw Paddock Inn, and in the West Swale district to the lower part of Birkdale.

Alopecurus bulbosus L. English type. Native. Area 1. Range 50. Along Clifton Ings near York in the meadow opposite the Lunatic Asylum. In Britain usually a plant of salt-marshes.

Alopecurus agrestis L. English type. Colonist. Area general. Range 0-100. Common in cultivated fields in the low country.

Milium effusum L. British type. Native. Area 9 8 . 3. Range 0-150. Rare in shaded woods. In Gretadale in the woods by the stream side near Scargill. In Swaledale in a wood near the Round Howe; *James Ward.* On the east on the banks of the Hayburn Wyke stream; *W. Bean, Junr.*

Apera Spica-venti Beauv. Germanic type. Colonist. Area 3 2 1. Sandy cultivated fields, rare. In the Central Valley at Catton, Alne and Sutton-on-the-Forest. One plant in the Holmes, Thirsk, 1879; *W. Foggitt.* Reported also by Robert Teesdale from Bulmer.

Agrostis canina L. British type. Native. Area 8 7 6 5 4 3 2. Range 0-500. Frequent in damp places, ascending in the Yore district to Tarn Gill, Widdale.

Agrostis vulgaris With. British type. Native. Area general. Range 0-850. Everywhere common in grassy places, ascending to the peaks of Mickle Fell, Great Whernside, etc. *Agrostis pumila* is frequent amongst the hills.

Agrostis alba L. British type. Native. Area 9 8 . 6 5 4 3 2 1. Range 0-450. Frequent in damp places, ascending from the coast salt-marshes to a cascade over the Main Limestone of Gunnerside Gill.

Ammophila arundinacea Host. British type. Native. Maritime. Area 5 4 3. Range Coast-Level. Common in sandy ground along the coast from Middlesbrough to Scarborough.

Arundo Phragmites L. British type. Native. Area general. Range 0-450. Common in watery places, ascending in the Yore district to Semerwater, and to 1400 feet by Locker Tarn above Carperby ; *F. A. Lees.*

Arundo Calamagrostis L. English type. Native. Area 8 . 6 5 . 3 2 1. Range 0-150. Not unfrequent in damp woods in the low country. In Swaledale near Hipswell Lodge. In the Central Valley in Askham Bogs, Leckby Carr, on Stockton Forest, and by the side of the stream below Northallerton. On the east in a swampy wood below Captain Cook's monument on Kildale Moor, in Newburgh Woods, Cum Hag Wood, Thurtell Wood, etc.

Arundo Epigejos L. English type. Native. Area 6 5 4 3 2. Range 0-150. Not unfrequent in woods and thickets in the low country. In the Central Valley at Carthorpe, Fawdington, and between Thirsk and Woodend. In Cleveland at the foot of Kildale Moor, and near the mouth of the stream at Saltburn. Lane between Askham Bryan and Rufforth ; *H. Ibbotson.* In the Howardian tract in Coneysthorpe and Thurtell Woods.

Sesleria cærulea Scop. Highland type. Native. Montane. Xerophilous. Area 9 8 7. Range 200-800. Frequent